

# Environmental Impact Statement

Garden State Parkway  
Mainline Widening  
Interchange 30 to 80  
Contract No. 133-572D

Prepared for:



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Executive Office  
Woodbridge, New Jersey 07095

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## SUPPLEMENTAL REPORTS (PREVIOUSLY SUBMITTED TO THE REGULATORY AGENCIES)

- Air Quality Report, Prepared by Parsons Brinkerhoff Quade & Douglas, Inc. Dated July 2002
- Cultural Resources Investigation, Prepared by Parsons Brinkerhoff Quade & Douglas, Inc. Dated April 2000
- Endangered & Threatened Species Survey – Volume I, (Introduction and Methods), Prepared by Amy Greene Environmental Consultants, Dated December 2001
- Endangered & Threatened Species Survey – Volume II, (Results) Prepared by Amy Greene Environmental Consultants, Dated December 2001
- Endangered & Threatened Species Survey – Volume III (Impacts), Prepared by Amy Greene Environmental Consultants, Dated May 2002
- Essential Fish Habitat Study, Prepared by T&M Associates dated September 2002
- Noise Study, Prepared by Parsons Brinkerhoff Quade & Douglas, Inc. Dated July 2002
- Traffic Report, Prepared by Parsons Brinkerhoff Quade & Douglas, Inc. Dated January 2000
- Archaeological Survey, Prepared by Gannett Fleming, Dated September 2002
- Mullica River Bridge Rehabilitation and Widening – Environmental Permit Support Document – formerly referenced as Alternatives Analysis, Prepared by T&M Associates, Dated October 2006.



## EXECUTIVE SUMMARY

This Environmental Impact Statement has been prepared on behalf of the New Jersey Turnpike Authority for the proposed roadway widening between Interchange 30 to Interchange 80 of the Garden State Parkway. As part of the New Jersey Turnpike Authority's goal to improve access and flow to the Garden State Parkway, T&M Associates, Consulting Engineers, Planners and Environmental Scientists, was retained to prepare a study that explores and evaluates various alternatives for the functional expansion of the Garden State Parkway.

Because of population growth in the surrounding areas and past and anticipated future development patterns, it is necessary to expand the existing corridor to allow for vehicular movements from all directions on the Parkway. It is anticipated that once the widening improvements are in place, emergency access circulation within these areas will be improved, relief of traffic congestion on Route 9 will occur, evacuation plans for hurricane and forest fires will be better accommodated, and there will be a reduction in the number of traffic accidents occurring along U.S. Route 9.

This Environmental Impact Statement is also the basis for application to the New Jersey Department of Environmental Protection (NJDEP) Land Use Regulation Program for a Coastal Area Facilities Review Act (CAFRA) Permit and Waterfront Development Permit pursuant to N.J.A.C. 7:7-1.1 et seq. and to the New Jersey Pinelands Commission for the issuance of a Memorandum of Agreement.

This document also satisfies the Environmental Assessment (EA) requirements pursuant to the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ). This document has been prepared to determine whether the proposed widening of the Garden State Parkway from Interchange 30 to 80 will have potentially significant effects on the environment, in which case a full Environmental Impact Statement (EIS) pursuant to NEPA would need to be prepared, or whether the impacts of the proposed widening after mitigation are less than significant, in which case a Finding of No Significant Impact (FONSI) may be prepared.

### ES.1 PROJECT LOCATION

The project is located in the corridor formed between Milepost Marker 29.8 northward to Milepost 80.9 along the Garden State Parkway. The project will take place generally within the existing right-of-way of the Garden State Parkway throughout the total project area consisting of approximately 50 miles (**See Appendices C and D**).

The project runs through Ocean County, Burlington County and Atlantic County which includes 14 Municipalities, as follows:

Ocean County:	South Toms River Borough, Berkley Township, Beachwood Borough, Lacey Township, Barnegat Township, Stafford Township, Ocean Township, Eagleswood Township, Little Egg Harbor Township
Burlington County:	Bass River Township

Atlantic County: City of Port Republic, Galloway Township, Egg Harbor Township,  
City of Somers Point

## ES.2 PROJECT DEFINITION

The proposed project involves the widening of the Garden State Parkway from Interchange 30 in Somers Point to Interchange 80 in South Toms River by one lane in each direction. The proposed widening alternative takes into account wetlands locations and measures to minimize or avoid impacts to these locations. Based upon Potential Suitable Habitat information provided by Amy Greene Environmental Consultants, highly sensitive threatened and endangered species habitat areas are associated to a very great degree with wetlands areas and surrounding buffer areas. Therefore, where possible, minimization and elimination of wetlands impacts will achieve a similar result for threatened and endangered species and cultural resources as well. This process of wetlands avoidance is achieved through the following considerations:

- Shifting of the roadway alignment away from wetlands areas,
- Narrowing of berm width to four (4) feet and steepening of side slopes to 1 ½ : 1 in environmentally sensitive areas.
- Use of retained fills to support the roadway approaches to the Bass and Mullica River Bridges

## ES.3 SUMMARY OF IMPACTS

The proposed project involves anticipated impacts to natural, social, economic and cultural resources, as documented in this Environmental Impact Statement which are based, in part, on the various Technical Memoranda prepared for this project. The impacts are summarized as follows:

- The proposed widening will require minor to moderate cut and fill of the on-site soils. The project will include sedimentation and soil erosion control measures. It is noted that no geologic resources (bedrock) will be affected.
- The proposed project will require minor disturbance of vegetated areas. Those impacts will be as a result of cartway widening and placement of stormwater management features. In total, 155.58 acres of existing vegetated area will be cleared of which 88.84 acres will be converted to paved area.
- The project disturbs a little over 68 acres of potential threatened or endangered species habitat and the disturbances are negligible in comparison to the remaining potential habitat within and surrounding the project area.
- Major disruptions of the aquatic habitat within the Patcong Creek, Mullica River and Bass River, and their tributaries are not expected, and fisheries impacts will be negligible. No significant surface water quality impacts are anticipated as a result of the proposed project.
- The Preferred Alternative will require the placement of approximately 5,100 cubic yards of fill within the floodplains.
- It is anticipated that 7.707 acres of wetlands will be impacted as a result of implementation of the widening project. Because impacted wetland areas are greater than 1 acre, wetland mitigation will be required.

- The improved traffic flow resulting from project implementation will result in improved air quality of the project area for some receptors and will not exceed the National Ambient Air Quality Standards (NAAQS) for any receptor.
- The Preferred Alternative will not result in disproportionately high or adverse effects on minority or low income populations as defined in FHWA Order #6640.23, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, (USDOT, FHWA, 12/02/98). No adverse impacts on stability or the character of the community will result from the project.
- The Preferred Alternative will have an adverse effect on cultural resources. There will be no adverse impact to sites listed on the National Register of Historic Places or archaeological resources. The State Historic Preservation Office (SHPO) has determined that the Garden State Parkway itself, due to its age and defining characteristics, is eligible for listing as a historic corridor. The Turnpike Authority is in the consultation process with the State Historic Preservation Office which will ultimately provide comments to the Department's Bureau of Land Use Regulation for inclusion in the permits for the project. Lastly, the proposed project will also undergo the Federal 106 process which is being coordinated by SHPO and the ACOE (the lead Federal Agency). It is anticipated that this process will result in the development of a Programmatic Memorandum of Agreement.

### Summary Table of Proposed Impacts GSP Widening MP 30 to MP 80

<u>Impact Type</u>	<u>Agency</u>	<u>Acreage</u>	<u>Mitigation</u> <u>Ratio</u>	<u>Total Ac</u> <u>Required.</u>
Wetland Impacts	NJDEP/ACOE	7.707 Ac	2 To 1	15.414
T & E Impacts	NJDEP		1 to 1	68
Suitable T & E	NJPC	68 Ac*	2 to 1	136
Critical Habitat	NJDEP	46 Ac	2 to 1	92
Vegetation	NJDEP	155.58 Ac	None**	0
Removal				
Net Impervious	N/A	222.49 Ac	None	0
Increase				

\*Because the Garden State Parkway falls entirely within CAFRA and Pinelands Jurisdiction this 68 acres of impact will be mitigated for each agency. The Pinelands will require land preservation and the New Jersey Department of Environmental Protection has requested wildlife tunnels under the Garden State Parkway. This request is currently under evaluation by the Turnpike Authority.

\*\*Reforestation will not take place due to a New Jersey Division of Parks and Forestry proposal to develop a fire management program within the GSP right-of-way.

**Summary Table of Proposed Mitigation\***  
**GSP Widening MP 30 to MP 80**

<b>Mitigation Category</b>	<b>Bass River</b>	<b>Turtle Creek</b>	<b>Ballanger Creek</b>	<b>Mullica River</b>	<b>Forked River Game Preserve</b>	<b>Total</b>
<b>Tidal Wetland Creation</b>	<b>3.5</b>					<b>3.5</b>
<b>Tidal Wetland Enhancement</b>	<b>16</b>					<b>16</b>
<b>Tidal Wetland Preservation</b>	<b>61.5</b>			<b>31</b>		<b>57.5</b>
<b>Freshwater Wetland Preservation</b>		<b>56</b>	<b>48</b>			<b>104</b>
<b>T &amp; E Preservation Pinelands</b>		<b>210</b>				<b>210</b>
<b>T &amp; E Preservation CAFRA**</b>						<b>0</b>
<b>Critical Wildlife Habitat Mitigation CAFRA</b>					<b>90</b>	<b>90</b>
<b>TOTAL</b>	<b>82</b>	<b>266</b>	<b>48</b>	<b>31</b>	<b>90</b>	<b>517</b>

\*Please note these acreages are subject to change based on approval by the NJDEP, NJPC and USACOE.

\*\* The Department is currently negotiating the installation of snake tunnels in 11 locations within the project corridor as mitigation for impacts to T & E Suitable Habitat.

## 1.0 PROJECT PURPOSE AND NEED

The purpose of this project is to respond to the increasing development growth of the Central New Jersey Shore Region as it relates to traffic demands imposed upon the Garden State Parkway between Interchange 30 and 80. The widening of the Garden State Parkway addresses two major areas of need; 1) traffic congestion relief; and 2) public safety.

### 1.1 PROJECT BACKGROUND

The New Jersey Turnpike Authority is proposing to widen the Garden State Parkway between Interchange 30 in Somers Point and Interchange 80 in Toms River. The proposed project will take place generally within the existing right-of-way of the Garden State Parkway throughout the total project area consisting of approximately 50 miles. This portion of the Garden State Parkway runs through Ocean County, Burlington County and Atlantic County which includes 14 Municipalities comprised of: South Toms River Borough, Berkley Township, Beachwood Borough, Lacey Township, Barnegat Township, Stafford Township, Ocean Township, Eagleswood Township, Little Egg Harbor Township, Bass River Township, City of Port Republic, Galloway Township, Egg Harbor Township and the City of Somers Point.

The New Jersey Turnpike Authority anticipates the addition of one lane to each roadway (northbound and southbound) and increased shoulder width. During the initial project planning stages and site reconnaissance, several environmental constraints were encountered. As a result, the project team as well as the applicant analyzed these constraints in order to determine the most feasible design scheme in order to preserve and protect these environmentally sensitive areas. Based on these compelling factors, the proposed roadway widening will take place within the median wherever possible, as well as the outer portion of the roadway where appropriate. In certain areas, the roadway alignment was shifted in order to promote safe vehicular circulation and to minimize environmental impacts.

The New Jersey Turnpike Authority design philosophy is to design and build this roadway widening with minimal environmental disturbance while constructing a viable, feasible and aesthetically appealing project blending in with the existing character of the surrounding environment. In order to achieve this goal, the project team thoroughly evaluated alternative designs and configurations relative to the overall impacts of the project. The project configuration represents the most environmentally sensitive design, which promotes vehicular safety, minimal disruption of the public and minimal disruption of the quality of life of the residential communities adjacent to the project. The proposed project, however, has certain irreversible and unavoidable impacts. The project team identified these impacts and where feasible, mitigation measures have been incorporated into the development plans. Additional mitigation is currently being developed in cooperation with the various regulatory agencies having jurisdiction over the project.

### 1.2 TRAFFIC CONSIDERATIONS

The high rate of development in the Garden State Parkway/Route 9 Corridor, in the project area, since the 1950's has resulted in traffic volumes that are currently causing daily exceedances of the Parkway roadway traffic capacity on 66% of the length of the project area. This current level of

failure, and the projected additional segment failures, requires roadway infrastructure expansion to effectively service the traveling public. Development continues at a high level in Ocean, Atlantic and Burlington Counties. The section of the Garden State Parkway included in this growth area extends from Interchange 30 in Somers Point at the southerly end of Atlantic County to Interchange 80 in South Toms River in south-central Ocean County. The New Jersey Department of Labor 2000-2025 population increase projections in this area are 28.0% in Atlantic County, 28% in Burlington County, and 36% in Ocean County.

Traffic growth in this section of the Garden State Parkway has been, and is being, driven by residential and commercial development. The original function of the Parkway to mainly serve seasonal recreational travel has now evolved to include high volumes of commuter and inter-county /intra-county trips.

Residential development in southern Ocean County has produced increases in daily work trips north to traditional employment concentrations in New York, northern and central New Jersey, Trenton and the Princeton areas, as well as intra-County trips to developing local employment concentrations and other destinations in Ocean and Monmouth Counties. Additionally, Atlantic City is attracting ever increasing recreational trips from northern New Jersey and New York. The development in southern Ocean County, over last several decades, has created an ever increasing demand for increased capacity on the Parkway. Since there are no other north/south major arterial roadways other than the Parkway and U.S. Route 9 in southern Ocean County; the existing local access allows the Parkway to relieve the serious congestion on Route 9.

The Garden State Parkway provides the vital north/south link in the highway system feeding the three east/west highway corridors into Atlantic City. Development in Atlantic County has been, and is being, driven by the accelerated expansion of the hotel-casino industry in Atlantic City. This in turn is driving the nearby expansion of residential and commercial development to support this industry. Atlantic City generated traffic is a particularly significant component of daily traffic in Atlantic, Burlington and southern Ocean Counties. The importance of the Parkway as an artery serving the tourism/recreation in the South Jersey Coast area is evidenced by the level of employment dependent on this industry in the area. Over 170,000 tourism jobs exist in the South Jersey Coast area, and the tourism jobs represent a high percentage of all jobs in the area (45% in Atlantic County, 34% in Ocean County, and 92% in Cape May County).

Local government officials from southern Ocean County are keenly aware of the need to upgrade the Parkway to serve the needs of the shore communities in this new century. A resolution (Highway Infrastructure Blueprint for Southern Ocean County) was passed in early 1996 by Ocean County urging the Governor, the Department of Transportation, and the New Jersey Turnpike Authority in concert with the County to launch negotiations and intensive planning strategies to assess the widening needs of the Parkway in the central shore region. In response to this public outcry, the New Jersey Turnpike Authority retained Vollmer Associates to produce the study report *Needs and Feasibility Assessment of Mainline Parkway Widening, Interchanges 30-80*, dated October, 1996. This report assessed the existing and future development trends in Atlantic, Burlington and southern Ocean Counties on mainline capacity needs between Interchanges 30 and 80.

Based upon their analysis, by the year 2010, Vollmer projected that mainline capacity will be deficient by up to 17% between Interchanges 30 and 50 and by up to 44% between Interchanges 58 and 80. In the section between Interchanges 50 and 58, traffic would exceed 92% of capacity.

To confirm the validity of Vollmer's conclusions, as part of this study Parsons-Brinkerhoff conducted an independent assessment of future traffic conditions was (Technical Memorandum No. 7 – Traffic Report). Two approaches were considered; a daily capacity approach and a more detailed hourly profile approach. The conclusions reached in Technical Report No. 7 were similar to Vollmer's which supported the need for the additional lane in each direction. A subsequent study was undertaken by T & M Associates and their sub-consultant URS using the Statewide Transportation Model and current traffic data from 2005; capacity (AADT) was projected to 2025. Based on current data, the following are the predicted years of failure for each segment:

### Predicted Year of Failure by Segment

<u>Segment</u>	<u>Prediction</u>
80 to 74	1997*
74 to 69	2005*
69 to 67	2004*
67 to 63	2018
63 to 58	2015
58 to 52	2016
52 to 50	2017
50 to 48	2012
48 to 44	2016
44 to AC Rest	2019
AC Rest to 40	2009
40 to 38	2017
38 to 37	2009
37 to 36	2018
36 to 30	2013

\*Now in failure (Failure of 2 lanes @ 17,400 vpd = 34,800 vpd per direction)

## 1.3 PUBLIC SAFETY

When the Parkway was originally built in the early 1950s, it was impossible to envision the growth that would occur in and around it over the following half century. Tremendous growth and subsequent overpopulation within metropolitan areas of northern New Jersey promoted the migration of residents seeking a better quality of life to central and southern regions within the state. This migration transformed shore towns from remote, and virtually isolated summer resort towns with limited year round residents, to thriving bedroom communities with support facilities, shopping centers, and other developments. With the advent of this tremendous growth and increased number of year round residents, it is becoming increasingly important that the Garden State Parkway continue to serve as the primary evacuation route in the event of an emergency situation at the nearby Oyster Creek Power Plant, coastal storms, floods and Pineland fires.

Route 9, which shares the same alignment as the Parkway between Interchanges 48 and 50, is the only other potential roadway which could serve as an evacuation route. However, Route 9, under normal daily traffic conditions, is continually hampered by gridlock and bottlenecks. Traffic volumes greatly exceed design capacities and take a terrible toll in terms of property damage and human life. Upgrading Route 9 would be a monumental task involving numerous environmental issues and excessive right of way and acquisition costs. Such a modernization would profoundly and irrevocably impact “Main Street” for 12 historic communities and countless businesses and commercial sites.

Due to these circumstances, it is apparent that the Garden State Parkway, and not Route 9, be relied upon as the primary evacuation route for surrounding communities. The widening of the Parkway is necessary to accommodate the growth trends throughout the shore area and serve this vital public safety role.



## 2.0 DEFINITION OF ALTERNATIVES

### 2.1 NON-WIDENING ALTERNATIVES CONSIDERED

The preparation of an Environmental Impact Statement involves a detailed analysis of various alternatives as an integral component of the evaluation of proposed development. As a portion of the proposed Garden State Parkway (GSP) mainline widening from Interchange 30 to Interchange 80, several non-widening alternatives were considered. In addition to the No-Build/No-Action Alternative, various non-widening alternatives were analyzed to determine the most feasible method of satisfying the ever-growing demand on the GSP between Interchange 30 to Interchange 80.

The alternatives that have been developed for the mainline widening between Interchange 30 and Interchange 80 are analyzed below in terms of the elements of purpose and need for the project, including environmental impacts. In addition, socioeconomic and safety considerations, as well as construction were also considered to provide additional points of comparison for the alternatives.

#### 2.1.1 No-Build Alternative

The No-Build Alternative assumes that there will be no widening of the northbound and southbound roadways. With this alternative, the GSP will continue to remain congested, as well as over utilized, as future demands continue to escalate. Two-thirds of the segments of the Parkway in this area already have excess traffic demand and the balance of the segments are expected to be over capacity in the next four to fifteen years. Therefore, the No-Build Alternative simply does not address inevitable need to expand this roadway and provide the traffic volume capacity needed in this vital corridor.

This alternative clearly has the least amount of physical environmental impact in comparison to the other alternatives. However, this alternative does not address the ever-growing demand, congestion or over-utilization of the GSP, as well as public safety. As congestion continues to worsen, larger volumes of vehicles are placed within closer proximity to one another, ultimately leading to the potential of an increased incidence of motor vehicle accidents and property damage. In addition, congestion within this corridor will result in idling traffic, which will in turn, lead to the depletion of air quality far beyond the limits of the project area.

The No-Build Alternative represents a failure to address continually increasing traffic volume and need for increased capacity. The GSP represents a major arterial connector between the northern and southern portions of the State and surrounding region. Larger volumes of traffic are continuously traveling to Atlantic City, as well as the increasing amounts of commuter traffic from Ocean, Burlington and Atlantic Counties, generated by continuing development. Based on these factors, this alternative does not represent a viable option to resolving the current and future roadway constraints.

#### 2.1.2 Elevated Highway

As a method of alternative improvement, the option of constructing an elevated roadway above the existing highway was analyzed. This method of construction has been adopted in various areas

throughout the Country; however, it has never been utilized for such a significant distance. This option represents a tremendous construction cost in excess of one billion dollars, as well as creating a significant ongoing maintenance issue. In addition, this type of improvement will warrant a similar amount of disturbance compared to the preferred alternative, as the footings necessary for the elevated roadway would extend well beyond the proposed limit of disturbance for the proposed alternative due to weight and height requirements of the structure. The addition of an elevated roadway would also create a very poor aesthetic environment, as the structure would be imposing on current and historical vistas as it is not visually compatible with the historic “Parkway” look.

Construction of this nature would potentially impact the environment in a larger magnitude as the stormwater from the completely impervious second deck, would have to be directed to an outfall with extreme limitations for addressing any form of water quality or stormwater management, as opposed to the preferred alternative, which can utilize other surficial methods. In addition, the construction of an elevated highway, would conflict with the existing overpasses. Based on these factors, this alternative does not represent a viable configuration due to the proposed construction cost and the amount of environmental disturbance.

### **2.1.3      High-Occupancy-Vehicle Lanes**

High-occupancy-vehicle (HOV) lanes can be used to influence travelers who drive to and from work alone; to switch to higher-occupancy methods such as mass transit, car pools or van pools. These alternate methods of transportation are allotted specific travel lanes or toll lanes in order to reduce travel times and ultimately serve as an incentive for greater HOV use.

Secondly, implementing an HOV lane within a two-lane highway would compound the congestion issue by leaving only one-lane for the remaining portion of the population that does not utilize the HOV system, as well as truck traffic, which relies on this portion of the GSP as a direct means of transportation

This alternative is minimal in cost and will not adversely impact the environment or serve the purpose and need of the project. Motorist participation is a major factor as well as employer contribution or sponsoring of higher occupancy vehicles. The New Jersey Turnpike Authority has no control over either of these factors. They can implement an HOV system within the specified area of the project, but there is no guarantee that it will be utilized. Based on these factors, the HOV Alternative does not represent a suitable solution to the project’s purpose and need. Also with high volume vehicles gaining access to and from the HOV lane potential intra-County users will encounter dangerous weaves adding to congestion backups in lanes crossed.

### **2.1.4      Park and Ride Lots**

Park and ride lots, similar to that of HOV lanes, encourage people to park their vehicles in designated areas and rely on mass transit to reach their final destinations. Within the limits of the project, the GSP presently contains several park and ride facilities. Expanding these existing facilities or constructing new facilities would create a significant amount of environmental disturbance in order to create the required parking areas. It is estimated that at least 234 acres of hard parking surface would be needed to support a travel mode shift sufficient to relieve the need to widen the Parkway. A change in travel mode selection sufficient to avoid a new lane (17,400

drivers) represents at least one-third of the future travel demand; such a shift is highly improbable. In addition, traffic would still be required to travel on the GSP in order to reach the designated park and ride areas, which would continue to contribute to the overall congestion. Based on these issues, the Park and Ride Alternative does not represent a probable solution, and was therefore rejected.

### **2.1.5      Car and Van Pools**

The alternative of promoting car and van pools, similar to park and ride lots and HOV lanes, represents a temporary solution to an escalating condition. The problem within the project area is not solely related to the commuter AM and PM peak hour traffic flows. A significant portion of the volume associated with the congestion and over-utilization of the roadway stems from leisure and/or resort-oriented trips and local trips within the counties. Motorists from the entire northern portion of the region travel the GSP at various times to reach their destination in the Atlantic City area, as well as, the percentage of the population that travel to the beaches during the summer season. Due to this traffic mix, implementation and promotion of car and van pools will have an imperceptible decrease in overall traffic volumes. Similar to HOV lanes and park and ride facilities, motorist participation and employer sponsorship / contribution to provide vehicles for this service are the main issues associated with this alternative. The New Jersey Turnpike Authority can promote this method, but can not assure its success. Again the number of car and van pools needed would be well over 10,000, a number that is improbable based on the demographics and travel patterns in the area. Given these detriments, this alternative is not a viable option to relieve the existing and future problems associated with the roadway, and was therefore rejected. Car and van pools may be part of the answer but they are not the solution.

### **2.1.6      Ferry Terminal Service**

Ferry terminals strategically located in Ocean, Burlington and Atlantic Counties were analyzed as a method of congestion relief for the current and future roadway conditions. This method would be extremely costly, in addition to having environmental impacts associated with developing ferry terminals on the waterfront. This alternative would relieve only a small percentage of GSP motorists. The primary problem associated with this alternative would be the secondary impacts to the surrounding municipalities.

The increase on the local roadway network generated by commuters utilizing ferries would result in failure of the existing infrastructure, as well as creating the need for significant improvement expenditures. As a result, this alternative is not a practicable method of addressing the project purpose and need, and was therefore rejected.

### **2.1.7      Widening of U.S. Route 9**

The alternative of widening New Jersey Department of Transportation (NJDOT)-owned and operated U.S. Route 9 was analyzed, as this highway generally runs parallel with the GSP. Between Interchanges 48 and 50, U.S. Route 9 and the GSP share the same right-of-way and alignment. The immediate problems associated with this alternative stem from the lack of available NJDOT right-of-way, as the majority of the region is either developed with commercial/residential uses on both sides of the roadway or have severe environmental constraints. A widening project would destroy the centers of eighteen towns and villages along the route. In addition, a number of the villages are

historic and cultural resource conflicts within the existing right-of-way. The construction cost associated with widening U.S. Route 9 would be higher when compared to the preferred GSP widening alternative mainly due to right-of-way acquisition and utility issues not present on the GSP. This option affords no less impact to environmentally sensitive resources and habitats, as significant areas surrounding U.S. Route 9 right-of-way are wildlife refuges and wetlands. Finally, the widening of Route 9 would require 337 acres of new hard surface compared to the 222.49 acres needed for the Parkway widening. Given these factors, the option of widening U.S. Route 9 is not a viable alternative, and was therefore rejected.

### **2.1.8      Light and Heavy Rail**

The option of constructing a light or heavy rail system within the available GSP right-of-way was analyzed as an alternative method of relieving traffic congestion. A light rail system requires population of 15,000-25,000 individuals per square mile to be effective. Heavy rail requires dense destination points and reasonably dense origin points. The NJ TRANSIT Atlantic City Line, Philadelphia/Camden and Atlantic City only has about 1,500 riders per day on a line with major terminus points. The benefits of this would be a measurable decrease in pollution, increased commuter efficiency, and elimination of a measurable amount of vehicles on the GSP. However, the negative factors associated with this alternative, reduce the potential for the implementation of a light or heavy rail system.

The construction of a rail system would require 677 acres of disturbance in the median of the Parkway, 234 acres of Park-Rides to support the rail, including a significant amount of wetland disturbance. The rail line would conflict with all of the existing overpasses and interchanges. As previously discussed, the median is very narrow to non-existent in some places, which would require a significant amount of environmental (wetland) disturbance in order to create the required rail infrastructure. In addition, the cost of implementing a system of this type would exceed two billion dollars. Light and heavy rail systems require access from origins (P-R) and at destinations. Based on these factors, this alternative does not appear to be a viable alternative and was therefore, rejected.

### **2.1.9      Buses**

Increasing bussing throughout the project area was considered as an alternative to the GSP widening. The Parkway is already heavily traveled by buses, primarily buses destined for and supported by the casino industry. The current demand for public bus service on this corridor warrants a bus every two hours (NJ Transit 319 Bus). To avoid the adding of a lane the number of buses in one direction would have to increase from 10 a day to over 300 a day, highly unlikely. By adding more buses to this heavily traveled roadway, without attaining a sufficient mode transfer to bussing, would not relieve congestion and may worsen it. Creation of a Bus Rapid Transit system to create a more attractive mode for potential riders would require 537 acres of disturbance, plus an additional 234 acres for supporting park-rides. Finally, a bus system, similar to a rail system, needs a high demand destination(s) to draw sufficient riders. Such a high demand destination (i.e., Newark/New York) does not exist in the project corridor within the travel distances that would attract riders. This alternative does not appear to satisfy the project goal of relieving congestion, and was therefore, rejected.

## 2.2 WIDENING ALTERNATIVES CONSIDERED

### 2.2.1 Alternative No. 1

The proposed GSP half section for each of the design alternatives contains a width of 58 ft. including a 10 ft. left shoulder, three (3) 12 ft. lanes and a 12 ft. right shoulder. This represents an 18 ft. widening of both the northbound and southbound roadways. The proposed width is 2 ft. greater on mainline bridges due to a 12 ft. left shoulder being employed. The proposed lane and shoulder widths are the desired minimum required based upon NJDOT criteria for freeway design concerning truck traffic volume and driver safety considerations. To minimize impacts of the widening on the surrounding environment, it was practical to maintain, as closely as possible, the horizontal and vertical alignments of the existing mainline roadway.

Segments along the GSP can be segregated into two (2) major categories; those with generally wide, grassed and landscaped median areas and those with no median areas. Within segments having no median, the northbound and southbound lanes are separated by either guide rail or concrete barrier curb. Three (3) possible alignment options for each category are evident in the first step of the development of possible design alternatives:

<u>Options</u>	<u>Wide median area</u>	<u>No median area</u>
1	Inside widening	Widening to east
2	Outside widening	Widening to west
3	Inside / outside widening	Widening to east & west

The first alternative maximizes widening to the median where physically possible. The median is generally wide, greater than 100 ft., throughout the entire project except between the following milepost limits:

- M.P. 30.6 – M.P. 31.4
- M.P. 35.7 – M.P. 37.0
- M.P. 39.5 – M.P. 40.3
- M.P. 47.6 – M.P. 52.2

Narrow median segments along the GSP represent 7.5 miles of roadway within the project limits. At locations with no median, generally the widening will occur symmetrically on both the northbound and southbound portions of the GSP. At the major bridge structures spanning the Bass and Mullica Rivers the alignment is shifted to permit construction of a new three lane northbound bridge structure to the east of the existing structures. The existing bridge would be reconstructed and decked to cover the three southbound lanes and shoulders. The easterly alignment was chosen mostly due to environmental considerations and to eliminate the following shortcomings of widening the existing bridges:

- Traffic impacts on mainline traffic: One lane would be taken out of service during stage construction, as there is not sufficient width to maintain the existing two lanes and allow for a reasonable construction zone.

- Dissimilar life spans: The existing bridges, approximately 45 years old, are in need of deck replacement. Due to the steel superstructure configuration, the existing bridges cannot be re-decked in stages. New three lane parallel bridges would be constructed to provide the Authority with the ability to use the future three lane northbound bridge to temporarily carry two lanes in each direction while reconstructing and re-decking the existing older bridges to carry the three southbound lanes.
- Limited options for the new superstructure: Widening the existing bridges on both sides limits the new superstructures to essentially replicating the existing, non-redundant superstructure type, with several deck joints, due to the existing simple span arrangement. A more economical, shallow, continuous superstructure with a minimal number of deck joints and much more economical substructures would be excluded. Although the use of welded plate girders for the widening is possible, the spans would have to be simply supported with numerous deck joints, to match the existing bridge.
- Construction schedule and costs: Widening the existing bridges on both sides would require construction operations on both sides, resulting in longer construction periods and increased costs.

At the Bass River, a new parallel three lane bridge to the west of the existing bridge was deemed inappropriate for the following reasons:

- At the south end of the existing bridge, on the west side there is a house which would be impacted and would have to be acquired.
- There is an electrical tower at the southwest corner which would be impacted by a westerly alignment. The sharp skew of proposed Route 9 crossing which runs parallel to and immediately adjacent to the existing southwest wingwall, would require an additional long span to cross over and straddle Route 9.
- Additionally at the northwest side of the existing bridge, West Greenbush Road would be impacted and would require relocation as it goes under the GSP and curves to continue somewhat parallel to the GSP.

At service area locations the widening is shifted to the outside where environmental conditions allow the New Jersey Turnpike Authority to avoid impacting those facilities. Berm widths and side slopes are implemented according to NJDOT current design standards and are as follows:

<u>FILL HEIGHT</u>	<u>SLOPE</u>	<u>BERM WIDTH</u>
0 – 5'	6:1	2'
5 – 10'	4:1	3'
> 10'	2:1	7'
CUT	2:1	7'

As part of each design alternative considered, all local road overpass bridges will be replaced to increase the underclearance to minimum NJDOT standards and accommodate the mainline roadway widening.

Wetlands impacts attributed to this alternative represent approximately 80 acres (ac.) of disturbance. At locations, with no environmental impacts, the roadway alignment would be incorporated into the preferred alternative alignment.

### **2.2.2      Alternative No. 2**

The second alternative maintains the alignment developed for the first alternative. Environmental impacts will be reduced by narrowing berm widths and steepening side slopes of widened roadway segments adjacent to wetland areas. Berm widths and side slopes will be implemented for this alternative as follows:

FILL HEIGHT	SLOPE	BERM WIDTH
0 – 10'	4:1	3'
> 10'	2:1	7'
IN WETLANDS	1 ½:1	4'
CUT	2:1	7'

Wetlands impacts due to this alternative are reduced by roughly 55% as compared to Alternative 1 and total approximately 35 Ac of disturbance. In some instances, environmental impacts were eliminated by implementing this alternative. These segments will be combined with those from the first alternative to further develop the preferred alternative.

### **2.2.3      Alternative No. 3**

The third alternative takes into account wetlands locations and measures to minimize or avoid impacts to these locations. This represents another critical step toward design of the preferred alternative alignment. Based upon Potential Suitable Threatened and Endangered Habitat information provided by Amy Greene Environmental Consultants, highly sensitive threatened and endangered species habitat areas are associated to a very great degree with wetlands areas and surrounding buffer areas. Therefore, where possible, minimization and elimination of wetlands impacts will achieve a similar result for threatened and endangered species and cultural resources as well.

The process of wetlands avoidance is achieved through the following considerations:

- Shifting of the roadway alignment away from wetlands areas,
- Narrowing of berm width to four (4) feet and steepening of side slopes to 1 ½ : 1 in environmentally sensitive areas.
- Use of retained fills to support the roadway approaches to the Bass River & Mullica River Bridges.

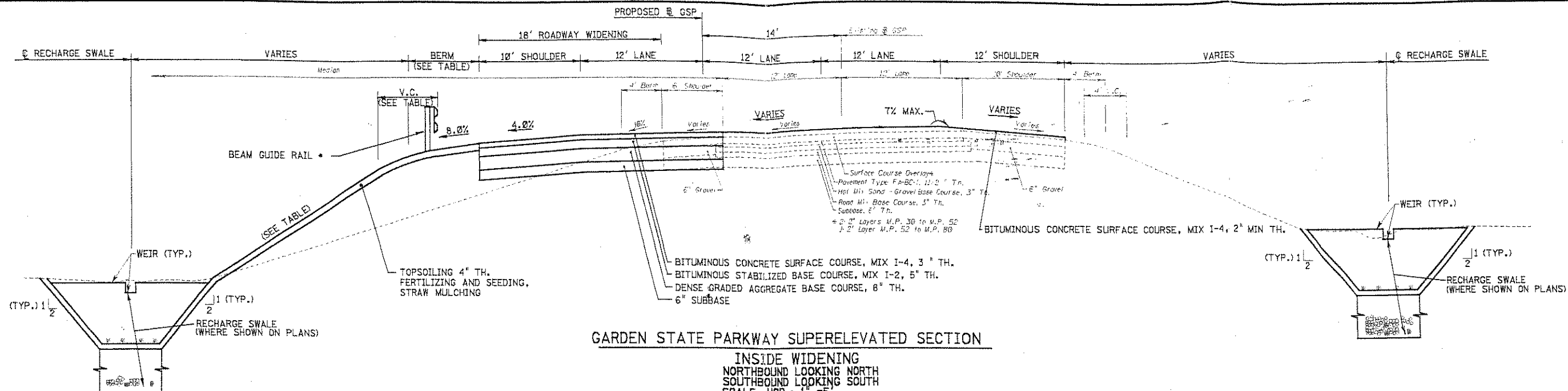
Wetlands impacts attributed to this alternative total approximately 7.707Ac of disturbance. This impact area represents a reduction of roughly 89% and 75% compared to the Alternative 1 and 2 wetland impacts, respectively.

The Typical Sections of the widening project are includes as **Figure 2-1**, which follows.

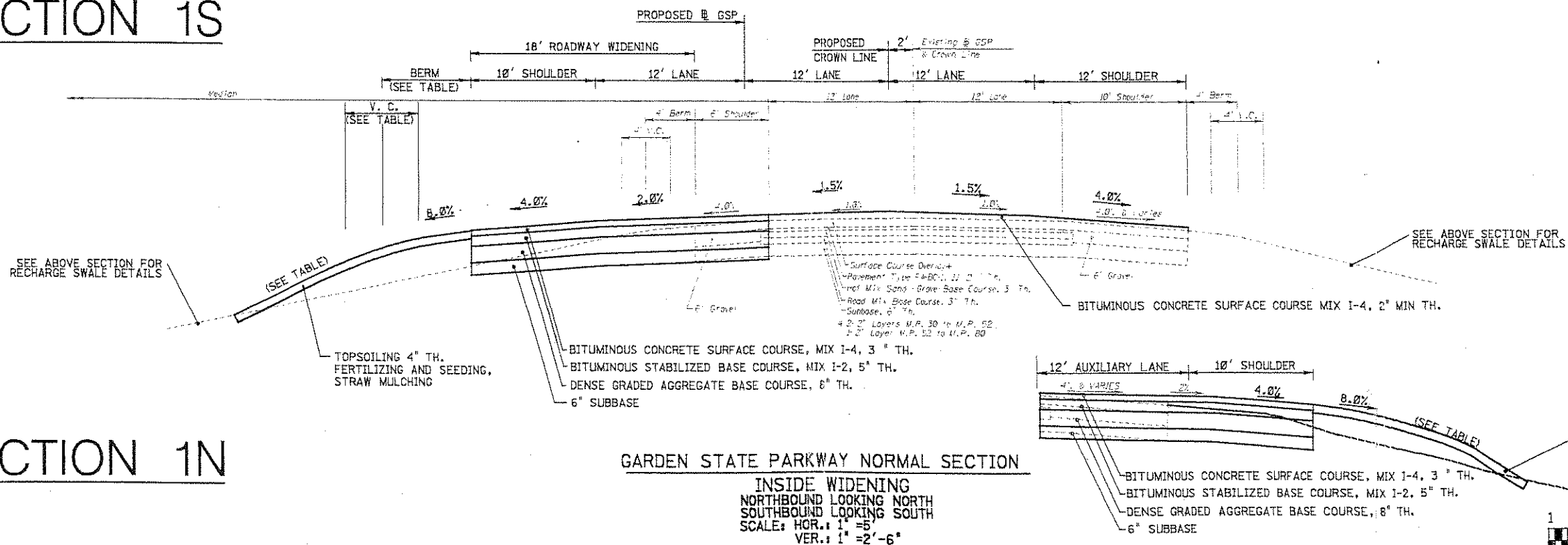


FIGURE 2-1  
TYPICAL SECTIONS

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## SECTION 1S



## SECTION 1N

SLOPE TABLE			
FILL HEIGHT	SLOPE	BERM WIDTH	V.C.
0 - 10'	4:1	3'	6'
> 10'	2:1	7'	6'
IN WETLANDS	1 1/2:1	4'	4'
CUT	2:1	7'	6'

NOTE:  
 1. Slant Lettering Depicts Existing Conditions  
 2. VERTICAL LETTERING DEPICTS PROPOSED CONDITIONS  
 3. PAVEMENT BOX SHOWN FOR COST ESTIMATING PURPOSES ONLY.  
 SUBJECT TO FINAL PAVEMENT DESIGN.

REVISION	BY	CHKD.	DATE

NEW JERSEY HIGHWAY AUTHORITY  
 GARDEN STATE PARKWAY  
 CONTRACT NO. 133-572D  
 GSP WIDENING M.P. 30 TO M.P. 80

TYPICAL SECTIONS

TM ASSOCIATES  
 11 TINGALL ROAD  
 MIDDLETOWN, N.J. 07448

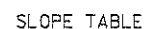
SCALE: AS SHOWN  
 DATE: APRIL, 2002  
 Frederick J. Hofmann, N.J.P.E. # 17253



\* GUIDE RAIL NOT REQUIRED FOR SLOPES OF 4:1 AND FLATTER



FIGURE 2



FILL HEIGHT	SLOPE	BERM WIDTH	V.C.
0 - 10'	4:1	3'	6'
> 10'	2:1	7'	6'
IN WETLANDS	1 1/2:1	4'	4'
CUT	2:1	7'	6'

NEW JERSEY HIGHWAY AUTHORITY  
GARDEN STATE PARKWAY  
CONTRACT NO. 133-572D  
GSP WIDENING M.P. 30 TO M.P. 80

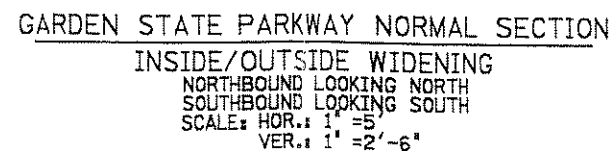
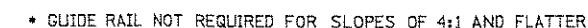
## TYPICAL SECTIONS

**TM** 11 TINDALL ROAD  
MIDDELETON, N.J. 07758

SCALE: AS SHOWN

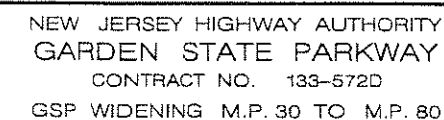
DATE: APRIL, 2002

Frederick J. Hofmann, N.J.P.E. # 17253



NOTE:

1. *Slant Lettering Depicts Existing Conditions*
2. VERTICAL LETTERING DEPICTS PROPOSED CONDITIONS
3. PAVEMENT BOX SHOWN FOR COST ESTIMATING PURPOSES ONLY.  
SUBJECT TO FINAL PAVEMENT DESIGN.



## TYPICAL SECTIONS

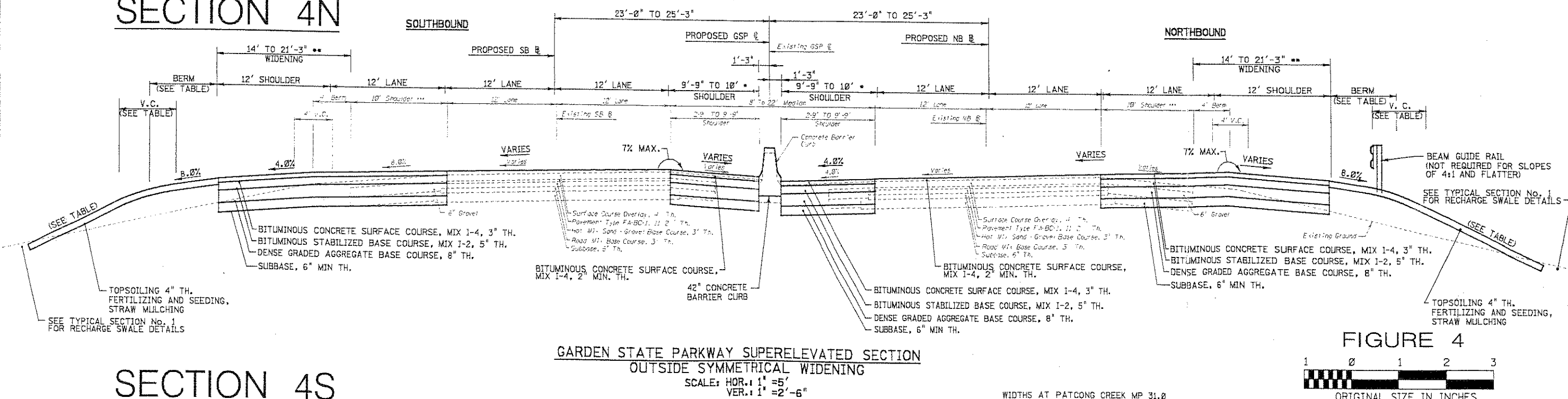
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MIDDLETOWN, N.J. 07748

SCALE: AS SHOWN

DATE: APRIL, 2002

Frederick J. Hofmann, N.J.P.E. # 17253

19



1 0 1 2 3

ORIGINAL SIZE IN INCHES

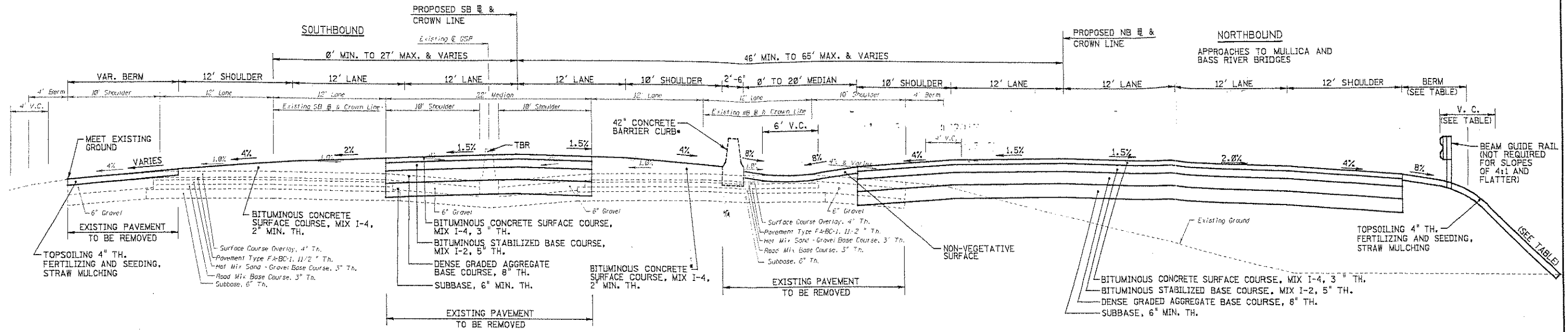
39

FILL HEIGHT	SLOPE	BERM WIDTH	V.C.
0 - 10'	4:1	3'	6'
> 10'	2:1	7'	6'
IN WETLANDS	1 1/2:1	4'	4'
CUT	2:1	7'	6'

NOTES:  
Slant Lettering Depicts Existing Conditions  
VERTICAL LETTERING DEPICTS PROPOSED CONDITIONS  
PAVEMENT BOX FOR ESTIMATING PURPOSE ONLY  
SUBJECT TO FINAL PAVEMENT DESIGN.

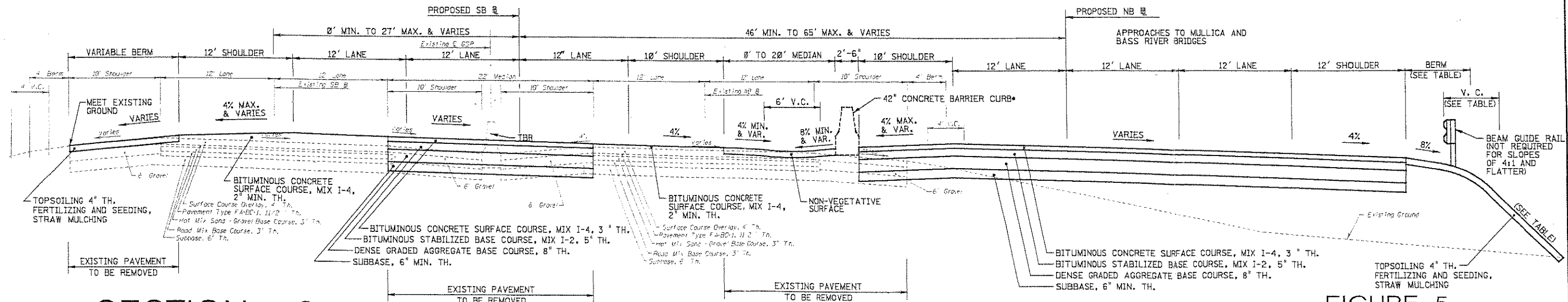
REVISION	BY	CHKD	DATE

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## SECTION 5N

GARDEN STATE PARKWAY NORMAL SECTION  
 WIDENING TO THE EAST  
 SCALE: HOR.: 1" = 5'  
 VER.: 1" = 2'-6"



## SECTION 5S

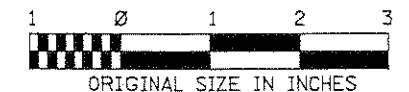
GARDEN STATE PARKWAY SUPERELEVATED SECTION  
 WIDENING TO THE EAST  
 SCALE: HOR.: 1" = 5'  
 VER.: 1" = 2'-6"

SLOPE TABLE

FILL HEIGHT	SLOPE	BERM WIDTH	V.C.
0 - 10'	4:1	3'	6'
> 10'	2:1	7'	6'
IN WETLANDS	1 1/2:1	4'	4'
CUT	2:1	7'	6'

NOTES:  
 Slant Lettering Depicts Existing Conditions  
 VERTICAL LETTERING DEPICTS PROPOSED CONDITIONS  
 PAVEMENT BOX FOR ESTIMATING PURPOSE ONLY  
 SUBJECT TO FINAL PAVEMENT DESIGN.  
 LOCATION OF 42" CONCRETE BARRIER CURB WILL BE AS SHOWN ON PRELIMINARY PLANS.

FIGURE 5



NEW JERSEY HIGHWAY AUTHORITY  
 GARDEN STATE PARKWAY  
 CONTRACT NO. 133-572D  
 GSP WIDENING M.P. 30 TO M.P. 80

### TYPICAL SECTIONS

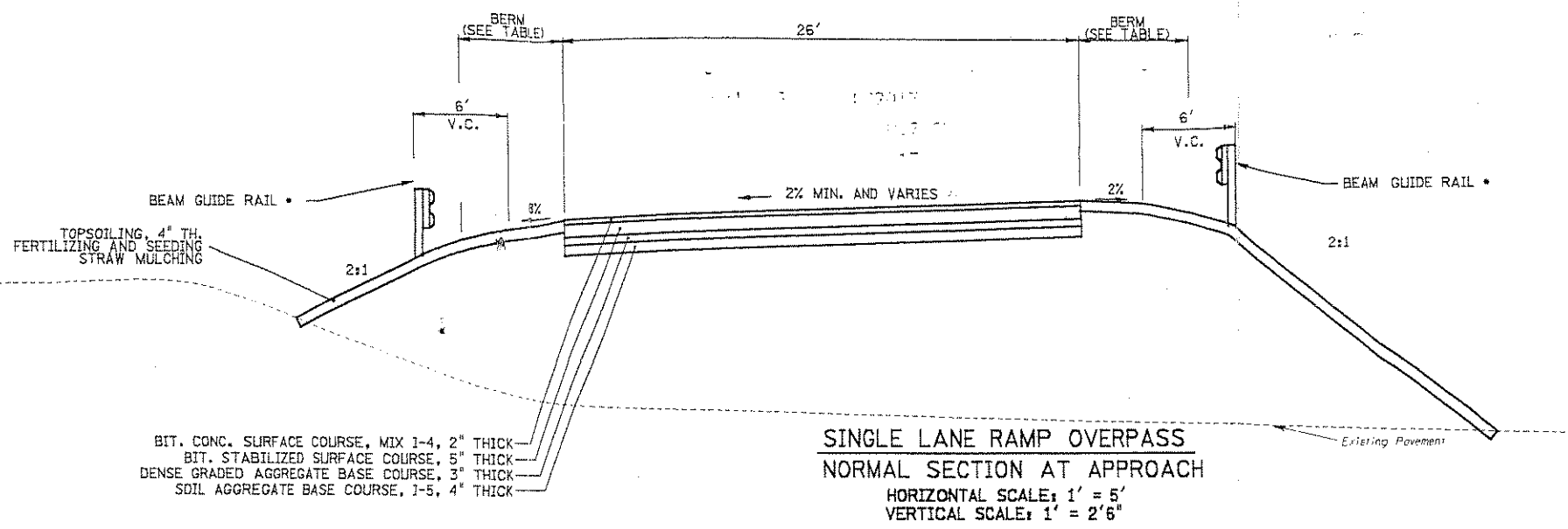
TM  
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 MIDDLETOWN, N.J. 07748

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 DATE: APRIL, 2002

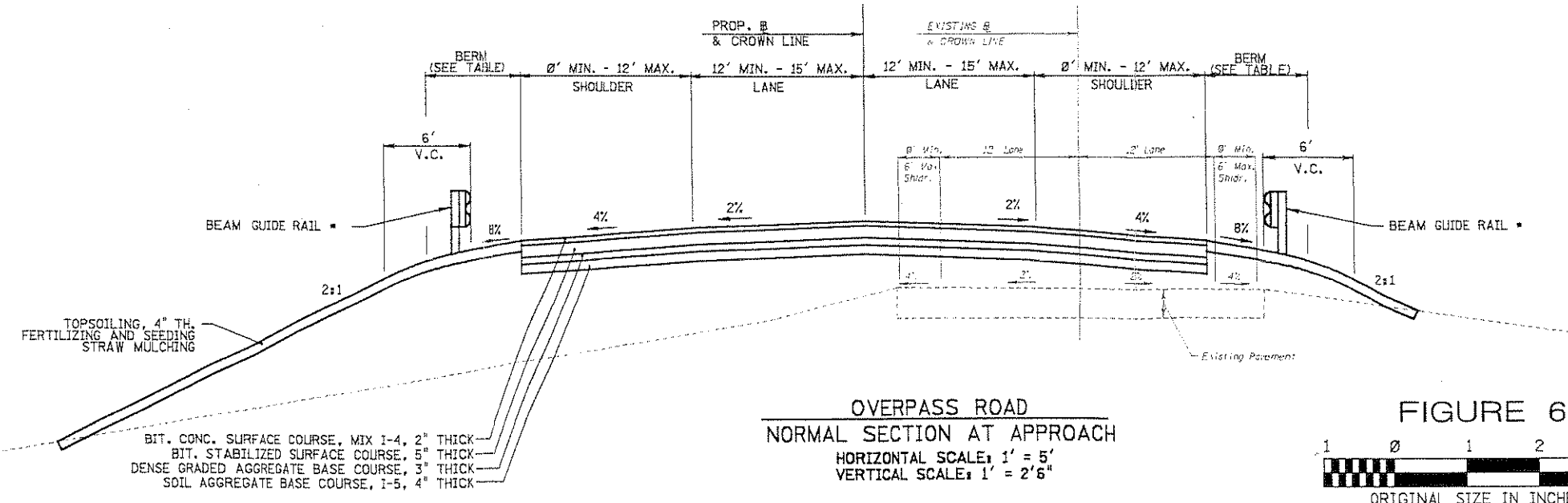
Frederick J. Hofmann, N.J.P.E. # 17253

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# SECTION 6A



# SECTION 6B

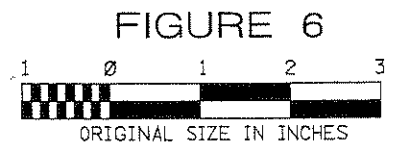


SLOPE TABLE

FILL HEIGHT	SLOPE	BERM WIDTH	V.C.
0 - 10'	4:1	3'	6'
> 10'	2:1	7'	6'
IN WETLANDS	1 1/2:1	4'	4'
CUT	2:1	7'	6'

• GUIDE RAIL NOT REQUIRED FOR SLOPES OF 4:1 AND FLATTER

NOTE:  
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NEW JERSEY HIGHWAY AUTHORITY  
 GARDEN STATE PARKWAY  
 CONTRACT NO. 133-572D  
 GSP WIDENING M.P. 30 TO M.P. 80

TYPICAL SECTIONS

TM  
 11 TINDALL ROAD  
 WINDSOR, N.J. 07080

SCALE: AS SHOWN  
 DATE: APRIL, 2002

Frederick J. Hofmann, N.J.P.E. # 17253

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## 3.0 ENVIRONMENTAL ANALYSIS

### 3.1 GEOLOGY AND GROUNDWATER

#### Affected Environment

There are five major physiographic regions that characterize New Jersey. The Ridge and Valley Region, the Highlands Region, the Piedmont Region, and the Inner and Outer Coastal Plain. These regions are based upon the geological processes which account for the diverse relief, drainage patterns, rock formations, and soil conditions found in New Jersey. Ocean, Burlington, and Atlantic Counties lie within the Outer Coastal Plain, which is characterized by vast expanses of upland pine forest, coastal marshes, and freshwater wetland habitats. The Outer Coastal Plain is composed of highly porous Tertiary and Quaternary clay, sand, and gravel formations that gently dip to the southeast. The high level of the groundwater along with the sandy, unconsolidated nature of the soil allows for rapid infiltration and an enormous water storage capacity.

Cohansey Sand is the most extensive surficial deposit found, according to the U.S. Department of the Interior Geologic Survey. The Kirkwood-Cohansey Aquifer system supplies most of the area's drinking water. Outcroppings of the Kirkwood formation are found in northern Ocean County. Along the project site, the base of the Kirkwood-Cohansey aquifer extends to 300 feet below the surface.

Another significant aquifer within the project area is the Atlantic City 800-Foot Sand. This aquifer, found in the lower portion of the Kirkwood formation, serves many wells from Harvey Cedars in Ocean County south to Cape May. Located in the southern portion of the project corridor, the 800-Foot Sand extends to 125 feet below the surface.

#### Proposed Impacts and Mitigation

The subsurface geology on-site is composed of highly porous Tertiary and Quaternary clay, sand, and gravel formations that allow for rapid infiltration and water storage capacity. Roadway construction and improvements in general do not affect the physiographic or geologic base. The additional pavement from this project should have little to no impact in disturbing the infiltration characteristics of the geology. In addition, withdrawal of groundwater from the geological formation is not proposed.

The widening project could impact the groundwater by increasing direct contamination and/or a reduction in the recharge capabilities. To avoid these impacts, the storm water management plan includes the use of natural drainage to retain, treat and recharge to the groundwater at least the additional runoff generated by the widening. Use of natural drainage systems minimizes the discharge of pollutants to ground or surface waters, without the need for large amount of disturbance that would accompany construction of ground recharge systems.



## 3.2 SOILS

### Affected Environment

Soil series descriptions for the three counties involved in this project are listed below. They provide a general perspective of the soils in an area based upon soil composition and topography.

For the project area within Ocean County, there are twelve general soil types: Atsion, Berryland, Downer, Evesboro, Hammonton, Lakehurst, Lakewood, Manahawkin, Mullica, Psammets, Sassafras, and Woodmansie.

Atsion soils are poorly drained and found in depressions and broad flats. Berryland soils are also poorly drained and subject to rare to frequent flooding. The soils of the Downer soil type, which is common to all three counties, are deep, well drained soils found on divides and side slopes. The Evesboro soil type is characterized by excessively drained soils on slopes ranging from 2 to 5 percent on average. Hammonton type soils are coarse-loamy, well drained or somewhat poorly drained, and common to depressions or low divides. The soil in the Lakehurst series are moderately well drained or somewhat poorly drained and found in depressions or low divides with a 0 to 3 percent slope. Lakewood type soils are also on divides and side slopes, but are excessively drained. Soils in the Manahawkin series are sandy, very poorly drained and found in the lowest portion of the landscape. Mullica soils are similar to Manahawkin type soils, but are coarse-loamy and occupy areas with a slope of less the 2 percent. Psammets are moderately deep to deep soils, excessively drained to very poorly drained soils with no soil horizons. This lack of horizonation is due to the fact that the Psammets found in Ocean County are formed out of fill material. Sassafras series soils are fine-loamy, deep, and well drained. They are common to divides and side slopes from 2 to 5 percent. The soils classified as Woodmansie are deep, well-drained soils found on divides and side slopes averaging from 0 to 5 percent.

Burlington County has six soil types within the project area: Atsion, Downer, Klej, Lakehurst, Marsh, and Woodstown. The Atsion and Downer soils series are similar to those found in Ocean County. The Klej soil series consists of deep, nearly level to gently sloping soils that are moderately well drained to somewhat poorly drained. Lakehurst soils, the most extensive soils within Burlington County, are deep, moderately well drained to somewhat poorly drained soils with a bleached horizon 7 inches thick or greater. Marsh areas are too variable to be classified as a series and are instead described according location, either tidal or freshwater. Woodstown soils are moderately well drained sandy and loamy soils that are nearly level for approximately 70 percent of the acreage within Burlington County.

In Atlantic County, there are thirteen soil types found in the project site: Atsion, Aura, Downer, Evesboro, Hammonton, Klej, Lakehurst, Matawan, Muck, Pocomoke, Sassafras, Tidal Marsh, and Woodstown. The Atsion, Downer, Evesboro, Hammonton, Klej, Lakehurst, Sassafras, and Woodstown soils are similar in structure to those soils listed for Ocean and Burlington Counties. Aura series soil consists of nearly level or gently sloping well-drained soils on hilltops and divides. Soils within the Matawan series are moderately well drained loamy soils generally found in intermediate areas of the landscape. Muck is composed of finely decomposed organic matter from 16 inches to 4 feet thick. It experiences a high water table and is saturated for much of the year. Pocomoke series soils are nearly level, very poorly drained loamy soils found in swampy depressions

and narrow drainage-ways. Tidal Marsh is generally a mineral surface layer over a highly organic layer. It is near continuously saturated.

### Proposed Impacts and Mitigation

Impacts to soil characteristics will be associated with land clearing, grading and placement of fill. The major impact will be the loss of topsoil through clearing, soil removal and site grading activities. During construction, soil will be stabilized through an approved soil erosion and sediment control plan. Typically employed stabilization methods include the following:

- Utilization of hay bales, soil reinforcement methods, mulch, and riprap where necessary for stabilization along the roadways.
- Minimizing the quantity and duration of exposed land through controlled clearing.
- Rapid establishment of permanent vegetation along the roadway after construction.
- Adopting plans to minimize the disturbance of topography, natural drainage patterns, and sensitive areas.

## **3.3 VEGETATION AND WETLANDS**

### Affected Environment

There are three major vegetation cover types throughout the project corridor. These include Upland Forest, Successional Field and Wetlands. These major categories are further defined by sixteen (16) basic vegetation communities or habitats, as follows:

#### Upland Forest Communities:

- Pitch Pine Forest
- Oak-Pine Forest
- Oak Forest
- Plantation (Coniferous)

#### Successional Field

- Herbaceous Old Field
- Woody/Late Old Field
- Unvegetated/Barren (with small patches of vegetation)

#### Wetlands

- Pitch Pine Lowland
- Hardwood Swamp
- Cedar Swamp
- Deciduous Scrub-Shrub Wetland
- Evergreen Scrub-Shrub Wetland
- Emergent Wetland

Successional Emergent Wetland  
Tidal High Marsh  
Tidal Low Marsh

These communities are described as follows:

Pitch Pine Forest

Pitch pine forests are extensive throughout the project corridor. They are dominated by pitch pine (*Pinus rigida*) with 75% or greater aerial coverage. Oaks may also be present at up to about 30% of the canopy coverage. Oak species typically include black jack oak (*Quercus marilandica*), post oak (*Quercus stellata*), white oak (*Quercus alba*), pin oak (*Quercus palustris*), and southern red or Spanish oak (*Quercus falcata*). Sassafras (*Sassafras albidum*) and black cherry (*Prunus serotina*) are also present to a lesser extent. The sapling layer may be well developed, and sapling and shrub cover combined may exceed 80%. Typical shrubs in this habitat type include sheep laurel (*Kalmia angustifolia*), inkberry (*Ilex glabra*), lowbush blueberry (*Vaccinium pallidum*), and black huckleberry (*Gaylussacia baccata*). Bracken fern (*Pteridium aquilinum*) is common in some areas. Glaucus and common greenbrier (*Smilax glauca* and *S. rotundifolia*, respectively) are common in this layer. The ground cover is sparse, due to the thick understory, and is dominated by teaberry (*Gaultheria procumbens*). Bare ground is usually less than 5%.

Oak-Pine Forest

This habitat type is co-dominated by pitch pine and various oaks (same oak species as above). The canopy closure tends to be 80% or higher. The sapling layer tends to be mainly hardwoods, and is about 10 to 25% aerial cover. The shrub layer is dominated by lowbush blueberry and black huckleberry, and averages about 50% aerial cover. Bracken fern is very common in some areas. Less than 10% of the ground surface is bare, and up to about 30% is covered by herbaceous species. The dominant herb is teaberry.

Oak Forest

The oak forest habitat type is similar to the oak-pine forest type, except that the trees tend to be less dense (about 75% or less canopy closure), and there is much less pitch pine (less than 25%). The sapling layer is about 25% aerial cover or less, and is dominated by oak. The shrub layer is dense, at about 80% aerial cover, and is dominated by lowbush blueberry and black huckleberry. The herbaceous layer is sparse and dominated by teaberry. Less than 10% of the ground surface is bare.

Plantation

Plantations contain mature conifers such as red pine (*Pinus resinosa*), Norway spruce (*Picea abies*), and white pine (*Pinus strobus*). Evenly spaced rows of trees characterize the plantation. There is little understory or herbaceous growth due to the high density of the canopy cover (near 100%).

### Herbaceous Old Field

Herbaceous old fields are areas that have been left unmowed for several years. Grasses and other herbaceous species dominate them. These include switchgrass, Pennsylvania sedge (*Carex pensylvanica*), chickory (*Cichorium intybus*), spotted knapweed (*Centaurea maculosa*), and a wide variety of other species. These areas may also have a small component (less than 25%) of woody vegetation, such as red cedar (*Juniperus virginiana*), red maple, pitch pine, and oak seedlings; as well as lowbush blueberry, chokeberry (*Aronia spp.*), blackberry (*Rubus spp.*), multiflora rose (*Rosa multiflora*) and other shrubs.

### Woody/Late Old Field

This habitat type is composed of areas, formerly cleared or mowed, which have been left unmowed for several years and are dominated by woody vegetation. Woody vegetation can be up to 80% aerial coverage. Species composition is largely the same as that described under Herbaceous Old Field above. In addition, saplings are more prevalent and may include oaks, sassafras, red cedar, black cherry, and pitch pine.

### Pitch Pine Lowland

This habitat type is dominated by pitch pine, with a component of up to 50% red maple (*Acer rubrum*). Other species, such as sweet bay magnolia (*Magnolia virginiana*) and Atlantic white cedar (*Chamaecyparis thyoides*), may make up a small component of the canopy. Canopy closure is typically greater than 80%. Bare ground is usually less than 5%. A dense understory shrub layer is usually present, usually between 50 and 80% aerial cover. Species typically included in the shrub layer include highbush blueberry (*Vaccinium corymbosum*), fetterbush (*Leucothoe racemosa*), dangleberry (*Gaylussacia frondosa*), sweet pepperbush (*Clethra alnifolia*), sheep laurel, swamp azalea (*Rhododendron viscosum*), and inkberry. Common greenbrier is also common. Ground cover includes cinnamon fern (*Osmunda cinnamomea*) and Sphagnum mosses.

### Hardwood Swamp

This habitat type is dominated by red maple. It may have a component of up to 20% pitch pine. The canopy often includes sweet bay magnolia and black gum (*Nyssa sylvatica*). The canopy closure is usually 75 to 100%. The sampling layer is up to 50% aerial cover. The understory shrub layer includes highbush blueberry, sweet pepperbush, and inkberry. Some hardwood swamps have a large component of cinnamon fern in the herbaceous layer. Sphagnum mosses are also common. Less than 5% of the ground is barren. There is some isolated ponding.

### Cedar Swamp

Cedar swamps are common along streams and rivers within the study area. Atlantic white cedar forms a dense canopy (80 to 100% closure), with other species, such as red maple, sweetbay magnolia, and pitch pine, composing 10% or less of the canopy. The sapling layer is not well developed. The shrub layer is usually sparse, and includes species such as highbush blueberry, swamp azalea, and sweet pepperbush. There is usually a well-developed Sphagnum layer. Liverworts are also very common.

#### Deciduous Scrub/Shrub Wetland

Deciduous scrub/shrub wetlands are composed mainly of shrub species with a few small red maple or sweet bay magnolia saplings. The most common shrubs species in these areas are fetterbush, maleberry (*Lyonia ligustrina*), staggerbush (*Lyonia mariana*), highbush blueberry, swamp azalea, sweet pepperbush, and winterberry (*Ilex verticillata*). These areas are filled with hummocks. Sphagnum mosses often form around the hummocks.

#### Evergreen Scrub/Shrub Wetland

These areas are dominated by small Atlantic white cedars and pitch pines. Common shrubs would include sheep laurel, leatherleaf (*chamaedaphne calyculata*), and cranberry (*Vaccinium macrocarpon*). Common herbaceous species include woolgrass (*scirpus cyperinus*), cottongrass (*Eriophorum virginicum*), white beaked rush (*Rhynchospora alba*), bush broomsedge (*Andropogon glomerata*), Canada rush (*Juncus canadensis*), round-leaved, spatulate-leaved, and thread-leaved sundew (*Drosera rotundifolia*, *intermedia*, and *filiformis*, respectively), and pitcher plant (*Sarracenia purpurea*). There is usually a thick layer of Sphagnum mosses.

#### Emergent Wetland

Emergent wetlands area areas with little or no wood vegetation, and are usually dominated by rushes, sedges, and/or grasses. Common dominant species include switchgrass (*Panicum virgatum*), bushy broomsedge, woolgrass, common cattail (*Typha latifolia*), soft rush (*Juncus effusus*), bur-reed (*Sparganium americanum*), Canada rush, and pipeworks (*Eriocaulon spp.*). Emergent wetlands are common along waterways and in ditches.

#### Successional Emergent Wetland

These areas area largely the result of human activity, such as sand and gravel mining. They are intermittently ponded. These areas contain some wood vegetation, such as young pitch pine or Atlantic white cedar, but typically less than 10% aerial coverage. They may also include highbush blueberry, dwarf huckleberry (*Gaylussacia dumosa*), fetterbush, staggerbush, bayberry (*Myrica pensylvanica*), and cranberry. They are dominated by such herbaceous plants as switchgrass, bushy broomsedge, Canada rush, and broom sedge (*Andropogon glomeratus*). Patches of spatulate-leaved sundew are also common.

#### Tidal High Marsh

These areas are located along large tidal waterways, such as the Bass River, Mullica River, and Patcong Creek. The areas are extensive, and tend to border upland fill along roadways. The dominant plants in this habitat type include salt-meadow grass (*Spartina patens*), spike grass (*Distichlis spicata*), black grass (*Juncus gerardi*), salt marsh bulrush (*Scirpus robustus*), and salt marsh cordgrass (*Spartina alterniflora*). Some areas have an abundance of shrubs such as marsh elder (*Iva frutescens*) and groundsel tree (*Baccharis halimifolia*). Common reed (*Phragmites australis*) is often invasive in these areas.

### Tidal Low Marsh

These areas are also located along large tidal waterways. They are closer to the open water than tidal high marsh. Typically, these areas are dominated by salt marsh cordgrass. Patches of salt-meadow grass, spike grass, and black grass may be included. In many areas, Tidal High Marsh and Tidal Low Marsh form a complex patchwork.

**TABLE 3-1  
OBSERVED DOMINANT PLANT SPECIES IN THE PROJECT CORRIDOR**

Common Name	Scientific Name
<b>TREES</b>	
Red Maple	<i>Acer rubrum</i>
Atlantic White Cedar	<i>Chamaecyparis thyroides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>
Sweet Bay Magnolia	<i>Magnolia virginiana</i>
Blackgum	<i>Nyssa sylvatica</i>
Norway Spruce	<i>Picea abies</i>
Red Pine	<i>Pinus resinosa</i>
Pitch Pine	<i>Pinus rigida</i>
White Pine	<i>Pinus strobus</i>
Black Cherry	<i>Prunus serotina</i>
White Oak	<i>Quercus alba</i>
Spanish Oak	<i>Quercus falcata</i>
Blackjack Oak	<i>Quercus marilandica</i>
Pin Oak	<i>Quercus palustris</i>
Sassafras	<i>Sassafras albidum</i>
<b>SHRUBS</b>	
Groundsel Tree	<i>Baccharis halimifolia</i>
Leatherleaf	<i>Chamaedaphne calyculata</i>
Sweet Pepperbush	<i>Clethra alnifolia</i>
Black Huckleberry	<i>Gaylussacia baccata</i>
Dwarf Huckleberry	<i>Gaylussacia dumosa</i>
Dangleberry	<i>Gaylussacia frondosa</i>
Inkberry	<i>Ilex glabra</i>
Winterberry	<i>Ilex verticillata</i>
Marsh Elder	<i>Iva frutescens</i>
Sheep Larel	<i>Kalmia angustifolia</i>
Fetterbush	<i>Leucothoe racemosa</i>
Maleberry	<i>Lyonia ligustrina</i>
Staggerbush	<i>Lyonia mariana</i>
Bayberry	<i>Myrica pensylvanica</i>
Swamp Azalea	<i>Rhododendron viscosum</i>
Glaucus Greenbriar	<i>Smilax glauca</i>
Common Greenbriar	<i>Smilax rotundifolia</i>
Highbush Blueberry	<i>Vaccinium corymbosum</i>

Cranberry	<i>Vaccinium macrocarpon</i>
Lowbush Blueberry	<i>Vaccinium pallidum</i>
<b>HERBACEOUS</b>	
Broomsedge	<i>Andropogon glomeratus</i>
Bush Broomsedge	<i>Andropogon glomerata</i>
Chokeberry	<i>Aronia spp.</i>
Pennsylvania Sedge	<i>Carex pensylvanica</i>
Spotted Knapweed	<i>Centaurea maculosa</i>
Chickory	<i>Cichorium intybus</i>
Spike Grass	<i>Distichlis spicata</i>
Spatulate-leaved Sundew	<i>Drosera intermedia</i>
Thread-leaved	<i>Drosera filiformis</i>
Round-leaved Sundew	<i>Drosera rotundifolia</i>
Pipeworks	<i>Eriocaulon sp.</i>
Cottongrass	<i>Eriophorum virginicum</i>
Teaberry	<i>Gautheria procumbens</i>
Canada Rush	<i>Juncus canadensis</i>
Soft Rush	<i>Juncus effusus</i>
Black Grass	<i>Juncus gerardi</i>
Cinnamon Fern	<i>Osmunda cinnamomea</i>
Switchgrass	<i>Panicum virgatum</i>
Common Reed Grass	<i>Phragmites australis</i>
White Beaked Rush	<i>Rhynchospora alba</i>
Multiflora Rose	<i>Rosa multiflora</i>
Blackberry	<i>Rubus sp.</i>
Pitcher Plant	<i>Sarracenia purpurea</i>
Woolgrass	<i>Scirpus cyperinus</i>
Salt Marsh Bulrush	<i>Scirpus robustus</i>
Bur Reed	<i>Sparganium americanum</i>
Salt Marsh Cordgrass	<i>Spartina alterniflora</i>
Salt Meadow Grass	<i>Spartina patens</i>
Sphagnum Moss	<i>Sphagnaceae sp.</i>
Common Cattail	<i>Typha latifolia</i>

Wetlands exist in the project vicinity. These wetlands were field delineated pursuant to the three-parameter approach outlined in the “New Jersey Pinelands Commission Manual for Identifying and Delineating Pinelands Area Wetlands.” The three parameters involved are soils, vegetation, and hydrology. The three-parameter approach is based on the evaluation of on-site conditions for evidence of hydric soils, hydrophytic vegetation and supporting wetland hydrology. This detailed field investigation included an analysis of each different ecological habitat. A representative plot, called a "Community," was investigated in each habitat to determine specific soil conditions, relative hydrologic association, and vegetative dominance. The communities encompassed a circle one tenth of an acre in size, but can vary in size and shape as required to eliminate other community/habitat influences. Attention was also given to areas that have been disturbed either through vegetative alteration, reworked soil profiles, or altered drainage patterns.

On-site vegetation was analyzed to determine the areas dominated by hydrophytic vegetation. Individual plant communities were reviewed for species domination. Plant species were identified and classified by indicator status category, as outlined in the "National List of Plant Species that

Occur in Wetlands: 1988 New Jersey", or a suitable alternative. Obvious domination by obligate wetland and facultative wetland species, under the Plant Community Assessment Procedure, under certain circumstances, eliminated the need for detailed investigation of the soil.

Where necessary, soil borings were made with hand augers to locate and identify the extent of hydric soils. Typical field indications of hydric soil conditions included occurrences of a histic epipedon, gleyed mineral soils, mottled soils with a low matrix chroma, mineral soils with a chroma of one or less, aquic moisture regimes, sulfur content, iron or manganese concretions, oxidized root channels, ferrous iron content, and significant layers of organic materials. Soil matrix and mottle colors were determined by comparing site samples to a Munsell Soil Color Chart. This chart provided information relative to the soil's chroma and hue.

Indications of wetland hydrology were also reviewed. These included evidence of surface inundation (drift lines, water lines, sediment deposition, bare wash areas, moss lines, water or sediment stained leaves, standing or flowing water, surface scour, and/or visible drainage patterns); soil saturation; morphological adaptations of vegetation (shallow root systems, buttressed tree bases, hummocks, inflated or floating stems and leaves, and/or multiple tree trunks); topographic indications (natural drainage ditches, swales, depressions, defined stream banks and/or site gradient); and engineering structures (pipes, culverts, bridges, catch basins, tile drains and/or rip-rap). Where the hydrology parameter was present and the area did not display hydrophytic vegetation (or is unvegetated), a determination is made of state open waters.

The boundary between wetland areas and upland areas was field delineated in the project area utilizing the required parameters as previously described. Stakes and/or flagging were used to mark the wetlands/uplands boundary.

Due to the scope of this project, a unique system of labeling wetland areas was created. The method uses Milepost Marker 55 as a demarcation line, creating northern and southern divisions for the project. The project is further divided by using the median to separate northbound and southbound lanes, thus creating six sections. These sections are summarized as follows:

- NW Northwest Quadrant, Interchange 80 south to MP 55
- SW Southwest Quadrant, MP 55 south to Interchange 30
- SM Southern Median, Interchange 30 north to MP55
- NM Northern Median, MP 55 north to Interchange 80
- SE Southeast Quadrant, Interchange 30 north to MP 55
- NE Northeast Quadrant, MP 55 north to Interchange 80

The extent of freshwater wetlands, as field delineated, was plotted on project mapping. These maps are included in Volume 2. The New Jersey Pinelands Commission and U.S. Army Corps of Engineers field verified the delineation in 2001 and re-verified the wetlands in 2002 after U.S. Army Corps of Engineers and USEPA field review.

### Proposed Impacts and Mitigation

Some existing vegetation will be removed to accommodate the proposed roadway expansion. The



existing vegetation will be preserved to the maximum extent possible and any temporarily disturbed areas will be restored with similar vegetation after construction.

The preferred alignment minimizes unavoidable impacts to wetlands to the maximum extent practicable. Table 3-2 presents the impacts to wetlands by location, jurisdiction, type, watershed and area.

#### SUMMARY OF WETLANDS IMPACTS

<b>Coastal Wetlands (Tidal Marsh)</b>	129,961.26 s.f. (2.9835 ac.)		
<b>Freshwater Wetlands</b>	201,177.4 s.f. (4.6184 ac.) (22,235 s.f - 0.4875 ac. are ditches)		
<b>Open Water Span (no fill)</b>	4,573.8 s.f. (.105 ac.)		
<b>Total</b>	<b>335,735 s.f. (7.707 ac.)</b>		
<b>Non-Assumed (Federal) Wetlands</b>	265,194 s.f. (6.088 ac.) (incl. 0.33 ac. of spans over open water)		
<b>Assumed Wetlands Impacted</b>	70,541 s.f. (1.619 ac.) (incl. 0.1050 ac. of spans over open water)		
<b>Total</b>	<b>335,735 s.f. (7.707 ac)</b>		
<b>Impacts:</b>	<b>Non-assumed</b>	<b>Assumed</b>	<b>Total</b>
Tidal Marsh	2.9835 ac.	0.0000 ac	2.9835 ac
Emergent Wetlands	1.2225 ac.	0.530 ac	1.7525 ac
Scrub-Shrub Wetlands	1.1895 ac.	0.5012 ac	1.6907 ac
Forested Wetlands	0.6595 ac	0.5157 ac	1.1752 ac
Open Waters	0.0330 ac	0.0720 ac	0.105 ac
<b>Total</b>	<b>6.088 ac</b>	<b>1.6189 ac</b>	<b>7.7069 ac</b>

#### Temporary Wetland Impacts:

- Temporary impacts for bridge construction – to be restored = 3.848 Ac  
(Mullica River Bridge 2.50 Ac)  
(Bass River Bridge - 1.348 Ac)

Table 3-2  
WETLAND IMPACTS  
WETLANDS IMPACTS

County	Milepost	GSP Location	Wetland Designation	Jurisdictional Type	Wetland Type	Watershed	Drainage Basin	Impact (SF)	Impact (Ac.)
Atlantic	30.20	SB Median	SM-C	US/NJDEP	Emergent Ditch	Mill Creek	Patcong Creek	83	0.0019
Atlantic	30.30	SB Outer	SW-MMM	US/NJDEP	Emergent	Mill Creek	Patcong Creek	47	0.0011
Atlantic	30.40	SB Outer	SW-MMM	US/NJDEP	Emergent	Mill Creek	Patcong Creek	361	0.0083
Atlantic	30.55	NB Outer	SE-D	US/NJDEP	Tidal Marsh	Mill Creek	Patcong Creek	27	0.0006
Atlantic	30.36	SB Outer	SW-MMM	US/NJDEP	Emergent	Mill Creek	Patcong Creek	2717	0.0624
Atlantic	30.40	NB Median	SM-KK	NJDEP	Isolated Emergent	Mill Creek	Patcong Creek	240	0.0055
Atlantic	30.48	NB Outer	SE-D	US/NJDEP	Emergent	Mill Creek	Patcong Creek	57	0.0013
Atlantic	30.52	NB Outer	SE-D	US/NJDEP	Emergent	Mill Creek	Patcong Creek	2493	0.0572
Atlantic	30.74	NB Outer	SE-F	US/NJDEP	Tidal Marsh	Patcong Creek	Patcong Creek	78	0.0018
Atlantic	30.88	NB Outer	SE-G	US/NJDEP	Emergent	Patcong Creek	Patcong Creek	279	0.0064
Atlantic	30.92	NB Outer	SE-G	US/NJDEP	Emergent	Patcong Creek	Patcong Creek	206	0.0047
Atlantic	31.00	SB Outer	SW-MMM	US/NJDEP	Emergent	Patcong Creek	Patcong Creek	18	0.0004
Atlantic	31.01	SB Outer	Open Water	US/NJDEP	Open Water	Patcong Creek	Patcong Creek	0	0.0000
Atlantic	30.95	NB Outer	Open Water	US/NJDEP	Open Water	Patcong Creek	Patcong Creek	0	0.0000
Atlantic	30.95	NB Outer	Intertidal	US/NJDEP	Intertidal	Patcong Creek	Patcong Creek	3040	0.0698
Atlantic	31.05	SB Outer	SW-MMM	US/NJDEP	Tidal Marsh	Patcong Creek	Patcong Creek	310	0.0071
Atlantic	31.00	NB Outer	SE-G	US/NJDEP	Emergent	Patcong Creek	Patcong Creek	138	0.0032
Atlantic	31.07	SB Outer	SW-MMM	US/NJDEP	Emergent	Patcong Creek	Patcong Creek	1555	0.0357
Atlantic	31.42	NB Median	SM-F	US/NJDEP	Emergent Ditch	Patcong Creek	Patcong Creek	1152	0.0264
Atlantic	31.55	SB Median	SM-F	US/NJDEP	Emergent Ditch	Patcong Creek	Patcong Creek	666	0.0153
Atlantic	31.50	NB Median	SM-F	US/NJDEP	Emergent Ditch	Patcong Creek	Patcong Creek	143	0.0033
Atlantic	31.59	SB Median	SM-G	NJ	Isolated Emergent	Patcong Creek	Patcong Creek	82	0.0019
Atlantic	31.99	NB Median	SM-H	US/NJ	Emergent Ditch	Patcong Creek	Patcong Creek	259	0.0059
Atlantic	32.21	SB Median	SM-I	US/NJ	Scrub-Shrub	Patcong Creek	Patcong Creek	147	0.0034
Atlantic	32.23	SB Median	SM-L	US/NJ	Scrub-Shrub	Patcong Creek	Patcong Creek	164	0.0038
Atlantic	32.45	NB Median	SM-M	NJ	Emergent Ditch	Patcong Creek	Patcong Creek	39	0.0009
Atlantic	33.36	SB Median	SM-Q	US/NJ	Isolated Forested	Patcong Creek	Patcong Creek	180	0.0041
Atlantic	33.33	NB Median	SM-Q	US/NJ	Isolated Forested	Patcong Creek	Patcong Creek	1151	0.0264
Atlantic	33.44	NB Median	SM-R	US/NJ	Emergent Ditch	Patcong Creek	Patcong Creek	910	0.0209
Atlantic	33.50	SB Median	SM-R	US/NJ	Emergent Ditch	Patcong Creek	Patcong Creek	594	0.0136
Atlantic	33.61	NB Median	SM-S	US/NJ	Emergent Ditch	Maple Run	Patcong Creek	3467	0.0796
Atlantic	34.30	NB Median	SM-U	US/NJ	Emergent	Little Meadow Run	Patcong Creek	31	0.0007
Atlantic	34.32	SB Median	SM-U	US/NJ	Emergent	Little Meadow Run	Patcong Creek	290	0.0067
Atlantic	34.41	SB Median	SM-V	US/NJ	Forested	Mill Branch	Patcong Creek	433	0.0099
Atlantic	34.41	NB Median	SM-V	US/NJ	Forested	Mill Branch	Patcong Creek	26	0.0006
Atlantic	34.46	SB Median	SM-V	US/NJ	Forested	Mill Branch	Patcong Creek	417	0.0096
Atlantic	34.50	SB Median	SM-W	US/NJ	Emergent	Mill Branch	Patcong Creek	119	0.0027
Atlantic	34.60	NB Median	SM-W	US/NJ	Emergent	Mill Branch	Patcong Creek	392	0.0090
Atlantic	34.66	NB Median	SM-W	US/NJ	Emergent	Maple Run	Patcong Creek	184	0.0042
Atlantic	35.01	SB Median	SM-W	US/NJ	Forested	Maple Run	Patcong Creek	677	0.0155
Atlantic	35.50	NB Median	SM-X	US/NJ	Scrub-Shrub	Maple Run	Patcong Creek	5915	0.1358
Atlantic	35.89	SB Outer	SW-DDD	US/NJ	Emergent Ditch	Maple Run	Patcong Creek	208	0.0048

Atlantic	35.90	NB Outer	SE-CC	US/NJ	Emergent Ditch	Maple Run	Patcong Creek	91	0.0021
Atlantic	37.78	SB Median	SM-AA	US/NJ	Isolated Scrub-Shrub	Ingersolls Branch	Absecon Creek	148	0.0034
Atlantic	37.95	NB Median	SM-BB	US/NJ	Forested	Ingersolls Branch	Absecon Creek	23	0.0005
Atlantic	38.17	NB Median	SM-CC	NJ	Scrub-Shrub Ditch	Ingersolls Branch	Absecon Creek	63	0.0014
Atlantic	38.70	NB Median	SM-GG	NJ	Emergent Ditch	Ingersolls Branch	Absecon Creek	59	0.0014
Atlantic	38.81	SB Median	SM-HH	US/NJ	Forested	Ingersolls Branch	Absecon Creek	626	0.0144
Atlantic	38.80	NB Median	SM-HH	US/NJ	Forested	Ingersolls Branch	Absecon Creek	182	0.0042
Atlantic	39.29	SB Median	SM-JJ	US/NJ	Scrub-Shrub	AC Reservoir	Absecon Creek	218	0.0050
Atlantic	29.31	SB Median	Open Water	US/NJ	Open water	AC Reservoir	Absecon Creek	741	0.0170
Atlantic	39.31	SB Median	SM-JJ	US/NJ	Scrub-Shrub	AC Reservoir	Absecon Creek	258	0.0059
Atlantic	39.31	NB Median	Open Water	US/NJ	Open water	AC Reservoir	Absecon Creek	696	0.0160
Atlantic	39.31	NB Median	SM-JJ	US/NJ	Scrub-Shrub	AC Reservoir	Absecon Creek	441	0.0101
Atlantic	39.55	NB Median	SM-MM	US/NJ	Scrub-Shrub	North Branch	Absecon Creek	191	0.0044
Atlantic	39.55	SB Median	SM-MM	US/NJ	Scrub-Shrub	North Branch	Absecon Creek	282	0.0065
Atlantic	39.99	SB Outer	SW-LL	US/NJ	Scrub-Shrub	North Branch	Absecon Creek	194	0.0045
Atlantic	41.22	SB Outer	SW-II	US/NJ	Scrub-Shrub	North Branch	Absecon Creek	315	0.0072
Atlantic	41.87	SB Median	SM-DDD	NJ	Forested Ditch	Mattix Run	Mullica River	35	0.0008
Atlantic	41.86	NB Outer	SE-PP	NJ	Emergent Ditch	Mattix Run	Mullica River	31	0.0007
Atlantic	42.27	SB Median	SM-GGG	NJ	Emergent Ditch	Morses Mill Stream	Mullica River	36	0.0008
Atlantic	42.43	NB Median	SM-HHH	NJ	Emergent Ditch	Morses Mill Stream	Mullica River	72	0.0017
Atlantic	42.61	NB Median	SM-III	US/NJ	Forested	Morses Mill Stream	Mullica River	558	0.0128
Atlantic	42.96	SB Median	SM-KKK	US/NJ	Forested	Morses Mill Stream	Mullica River	42	0.0010
Atlantic	43.20	NB Median	SM-LLL	US/NJ	Forested	Morses Mill Stream	Mullica River	180	0.0041
Atlantic	43.20	SB Median	SM-LLL	US/NJ	Forested	Morses Mill Stream	Mullica River	1099	0.0252
Atlantic	43.48	SB Median	SM-MMM	US/NJ	Forested	Morses Mill Stream	Mullica River	1470	0.0337
Atlantic	43.48	NB Median	SM-MMM	US/NJ	Forested	Morses Mill Stream	Mullica River	3725	0.0855
Atlantic	43.61	NB Median	SM-MMM	US/NJ	Forested	Morses Mill Stream	Mullica River	1700	0.0390
Atlantic	43.90	NB Median	SM-OOO	US/NJ	Scrub-Shrub	Morses Mill Stream	Mullica River	138	0.0032
Atlantic	43.91	SB Median	SM-OOO	US/NJ	Scrub-Shrub	Morses Mill Stream	Mullica River	62	0.0014
Atlantic	44.64	NB Median	SM-QQQ	US/NJ	Forested	Clarks Mill Stream	Mullica River	251	0.0058
Atlantic	44.68	NB Median	SM-QQQ	US/NJ	Forested	Clarks Mill Stream	Mullica River	1675	0.0385
Atlantic	44.80	SB Median	SM-QQQ	US/NJ	Forested	Clarks Mill Stream	Mullica River	1209	0.0278
Atlantic	44.82	NB Median	SM-QQQ	US/NJ	Forested	Clarks Mill Stream	Mullica River	485	0.0111
Atlantic	45.03	SB Median	SM-RRR	US/NJ	Scrub Shrub	Clarks Mill Stream	Mullica River	597	0.0137
Atlantic	45.01	NB Median	SM-RRR	US/NJ	Scrub-Shrub	Clarks Mill Stream	Mullica River	33	0.0008
Atlantic	45.11	NB Median	SM-SSS	US/NJ	Forested	Clarks Mill Stream	Mullica River	2288	0.0525
Atlantic	45.31	NB Median	SM-TTT	US/NJ	Forested	Clarks Mill stream	Mullica River	32	0.0007
Atlantic	45.65	SB Median	SM-VVV	US/NJ	Forested	Clarks Mill Stream	Mullica River	28	0.0006
Atlantic	45.64	NB Median	SM-VVV	US/NJ	Forested	Clarks Mill Stream	Mullica River	7	0.0002
Atlantic	45.86	SB Median	SM-XXX	NJ	Scrub-Shrub	Nacote Creek	Mullica River	1808	0.0415
Atlantic	46.90	SB Median	SM-YYY	US/NJ	Forested	Mullica River	Mullica River	1647	0.0378
Atlantic	47.02	SB Median	SM-YYY	US/NJ	Forested	Mullica River	Mullica River	988	0.0227
Atlantic	47.18	SB Median	SM-YYY	US/NJ	Forested	Mullica River	Mullica River	253	0.0058
Atlantic	47.11	NB Median	SM-YYY	US/NJ	Forested	Mullica River	Mullica River	272	0.0062
Atlantic	47.25	SB Median	SM-YYY	US/NJ	Forested	Mullica River	Mullica River	16	0.0004
Atlantic	47.98	SB Outer	SW-L	US/NJ	Emergent	Mullica River	Mullica River	127	0.0029
Atlantic	48.08	SB Outer	SW-L	US/NJ	Emergent	Mullica River	Mullica River	1279	0.0294
Atlantic	48.06	NB Outer	SE-DDD	US/NJ	Emergent	Mullica River	Mullica River	217	0.0050

Atlantic	48.30	SB Outer	SW-L	US/NJ	Tidal Marsh	Mullica River	Mullica River	3279	0.0753
Atlantic	48.30	SB Outer	SW-L	US/NJ	Tidal Marsh	Mullica River	Mullica River	1097	0.0252
Atlantic	48.30	SB Outer	SW-L	US/NJ	Tidal Marsh	Mullica River	Mullica River	5573	0.1279
Atlantic	48.44	NB Outer	SE-FFF	US/NJ	Tidal Marsh	Mullica River	Mullica River	1688	0.0388
Atlantic	48.70	NB Outer	SE-FFF	US/NJ	Tidal Marsh	Mullica River	Mullica River	16801	0.3857
Atlantic	48.86	NB Outer	Open Water	US/NJ	Open Water	Mullica River	Mullica River	0	0.0000
Atlantic	48.86	NB Outer	Intertidal	US/NJ	Intertidal	Mullica River	Mullica River	2020	0.0464
Atlantic	49.06	NB Outer	SE-FFF	US/NJ	Tidal marsh	Loveland Thorofare	Mullica River	30356	0.6969
Atlantic	49.06	NB Outer	SE-FFF	US/NJ	Tidal marsh	Loveland Thorofare	Mullica River	13305	0.3054
Atlantic	49.44	SB Outer	SW-L	US/NJ	Tidal Marsh	Loveland Thorofare	Mullica River	206	0.0047
Atlantic	49.50	SB Outer	SW-L	US/NJ	Tidal Marsh	Loveland Thorofare	Mullica River	22235	0.5104
Atlantic	49.60	NB Outer	SE-FFF	US/NJ	Tidal Marsh	Loveland Thorofare	Mullica River	4488	0.1030
Atlantic	50.00	NB Outer	SE-FFF	US/NJ	Tidal Marsh	Mathis Creek	Mullica River	861	0.0198
Atlantic	50.10	SB Outer	SW-L	US/NJ	Tidal Marsh	Mathis Creek	Mullica River	253	0.0058
Atlantic	50.11	NB Outer	SE-FFF	US/NJ	Tidal Marsh	Mathis Creek	Mullica River	697	0.0160
Atlantic	50.20	NB Outer	SE-FFF	US/NJ	Tidal Marsh	Mathis Creek	Mullica River	978	0.0225
Atlantic	50.20	SB Outer	SW-L	US/NJ	Tidal Marsh	Mathis Creek	Mullica River	1851	0.0425
Atlantic	50.27	NB Outer	SE-FFF	US/NJ	Tidal Marsh	Mathis Creek	Mullica River	2715	0.0623
Atlantic	50.40	SB Outer	SW-L	US/NJ	Tidal Marsh	Mathis Creek	Mullica River	473	0.0109
Atlantic	50.42	SB Outer	SW-L	US/NJ	Tidal Marsh	Mathis Creek	Mullica River	3633	0.0834
Atlantic	50.50	NB Outer	SE-FFF	US/NJ	Tidal Marsh	Bass River	Mullica River	4579	0.1051
Atlantic	50.68	SB Outer	SW-K	US/NJ	Emergent Ditch	Bass River	Mullica River	447	0.0103
Atlantic	50.65	NB Outer	SE-FFF	US/NJ	Tidal Marsh	Bass River	Mullica River	61	0.0014
Atlantic	50.61	NB Outer	SE-FFF	US/NJ	Tidal Marsh	Bass River	Mullica River	14419	0.3310
Atlantic	50.69	SB Outer	SW-K	US/NJ	Emergent Ditch	Bass River	Mullica River	11012	0.2528
Atlantic	50.85	NB Outer	SE-HHH	US/NJ	Emergent	Bass River	Mullica River	893	0.0205
Atlantic	50.96	NB Outer	SE-HHH	US/NJ	Emergent	Bass River	Mullica River	113	0.0026
Atlantic	51.15	SB Outer	SW-J	US/NJ	Emergent	Bass River	Mullica River	327	0.0075
Atlantic	51.10	NB Outer	SE-HHH	US/NJ	Emergent	Bass River	Mullica River	131	0.0030
Atlantic	51.20	SB Outer	SW-J	US/NJ	Emergent	Bass River	Mullica River	709	0.0163
Atlantic	51.50	NB Outer	SE-III	US/NJ	Scrub-Shrub	Bass River	Mullica River	1150	0.0264
Atlantic	51.61	NB Outer	SE-HHH	US/NJ	Emergent	Bass River	Mullica River	9244	0.2122
Atlantic	51.80	NB Outer	SE-HHH/SW-H	US/NJ	Emergent	Bass River	Mullica River	12103	0.2778
Atlantic	51.82	NB Outer	SW-III	US/NJ	Scrub-Shrub	Bass River	Mullica River	5562	0.1277
Atlantic	51.82	NB Outer	SW-III	US/NJ	Scrub-Shrub	Bass River	Mullica River	8773	0.2014
Atlantic	51.82	NB Outer	Intertidal	US/NJ	Intertidal	Bass River	Mullica River	1640	0.0376
Atlantic	51.95	NB Outer	SE-JJJ	US/NJ	Scrub-Shrub	Bass River	Mullica River	988	0.0227
Atlantic	52.02	NB Outer	SE-JJJ	US/NJ	Scrub-Shrub	Bass River	Mullica River	26237	0.6023
Atlantic	52.27	NB Median	SM-ZZZ	US/NJ	Emergent Ditch	Bass River	Mullica River	88	0.0020
Atlantic	52.31	SB Median	SM-ZZZ	US/NJ	Emergent Ditch	Bass River	Mullica River	104	0.0024
Atlantic	52.60	SB Median	SM-ZZZ	US/NJ	Forested	Bass River	Mullica River	387	0.0089
Atlantic	52.85	NB Median	SM-CCCC	NJ	Emergent Ditch	Jobs Creek	Mullica River	120	0.0028
Atlantic	53.06	SB Median	SM-CCCC	NJ	Forested	Jobs Creek	Mullica River	25	0.0006
Atlantic	53.07	NB Median	SM-CCCC	NJ	Forested	Jobs Creek	Mullica River	486	0.0112
Atlantic	54.88	SB Median	SM-CCCC	NJ	Forested	Jobs Creek	Mullica River	120	0.0028
Atlantic	53.19	NB Median	SM-CCCC	NJ	Forested	Jobs Creek	Mullica River	2354	0.0540
Atlantic	53.36	SB Median	SM-CCCC	NJ	Forested	Jobs Creek	Mullica River	735	0.0169
Atlantic	53.37	NB Median	SM-CCCC	NJ	Forested	Jobs Creek	Mullica River	929	0.0213

Atlantic	54.78	SB Outer	SW-A	NJ	Scrub-Shrub	Lake Absegami	Mullica River	58	0.0013
Ocean	55.33	NB Median	MN-A	NJ	Scrub-Shrub	Lake Absegami	Mullica River	121	0.0028
Ocean	55.82	SB Median	MN-B	NJ	Scrub-Shrub	Lake Absegami	Mullica River	144	0.0033
Ocean	56.02	SB Median	MN-C	NJ	Scrub-Shrub	Shrods Mill Branch	Little Egg Harbor	56	0.0013
Ocean	56.10	SB Median	MN-C	NJ	Scrub-Shrub	Shrods Mill Branch	Little Egg Harbor	1377	0.0316
Ocean	56.91	SB Median	MN-D	NJ	Scrub-Shrub	Shrods Mill Branch	Little Egg Harbor	563	0.0129
Ocean	56.95	NB Median	MN-D	NJ	Scrub-Shrub	Shrods Mill Branch	Little Egg Harbor	31	0.0007
Ocean	57.30	NB Median	MN-E	NJ	Forested	Shrods Mill Branch	Little Egg Harbor	2902	0.0666
Ocean	57.38	SB Median	MN-E	NJ	Forested	Shrods Mill Branch	Little Egg Harbor	30	0.0007
Ocean	57.85	NB Median	MN-F	NJ	Scrub-Shrub Ditch	Shrods Mill Branch	Little Egg Harbor	848	0.0195
Ocean	57.92	SB Median	MN-F	NJ	Scrub-Shrub Ditch	Shrods Mill Branch	Little Egg Harbor	119	0.0027
Ocean	58.80	SB Median	MN-G	NJ	Forested	Westecunk Creek	Little Egg Harbor	142	0.0033
Ocean	58.72	NB Median	MN-G	NJ	Forested	Westecunk Creek	Little Egg Harbor	232	0.0053
Ocean	59.44	SB Median	MN-H	NJ	Scrub-Shrub Ditch	Westecunk Creek	Little Egg Harbor	235	0.0054
Ocean	59.40	NB Median	MN-H	NJ	Scrub-Shrub Ditch	Westecunk Creek	Little Egg Harbor	353	0.0081
Ocean	59.45	SB Median	MN-I	NJ	Scrub Shrub	Westecunk Creek	Little Egg Harbor	242	0.0056
Ocean	59.50	NB Median	MN-I	NJ	Emergent	Westecunk Creek	Little Egg Harbor	2867	0.0658
Ocean	60.30	SB Median	MN-I	NJ	Emergent	Westecunk Creek	Little Egg Harbor	2387	0.0548
Ocean	62.36	NB Median	MN-K	NJ	Scrub-Shrub	Cedar Creek	Little Egg Harbor	1561	0.0358
Ocean	62.40	SB Median	MN-K	NJ	Scrub-Shrub	Cedar Creek	Little Egg Harbor	3341	0.0767
Ocean	64.20	NB Median	MN-N	NJ	Emergent	Mill Creek	Mill Creek	1773	0.0407
Ocean	64.25	SB Median	MN-N	NJ	Emergent	Mill Creek	Mill Creek	772	0.0177
Ocean	64.28	SB Median	MN-N	NJ	Scrub-Shrub	Mill Creek	Mill Creek	594	0.0136
Ocean	65.65	NB Median	MN-P	NJ	Emergent	Four Mile Branch	Mill Creek	1479	0.0340
Ocean	65.70	SB Median	MN-P	NJ	Emergent	Four Mile Branch	Mill Creek	1090	0.0250
Ocean	69.40	NB Median	MN-Q	NJ	Forested	N. Br. Waretown Creek	Barnegat Bay	53	0.0012
Ocean	69.68	SB Outer	NW-M	NJ	Forested	N. Br. Waretown Creek	Barnegat Bay	157	0.0036
Ocean	70.18	NB Median	--	NJ	Forested	N. Br. Waretown Creek	Barnegat Bay	406	0.0093
Ocean	70.52	NB Median	--	NJ	Forested	N. Br. Waretown Creek	Barnegat Bay	516	0.0118
Ocean	70.54	SB Median	--	NJ	Forested	N. Br. Waretown Creek	Barnegat Bay	64	0.0015
Ocean	71.00	SB Median	MN-S	NJ	Emergent	Oyster Creek	Barnegat Bay	1389	0.0319
Ocean	71.02	SB Median	MN-S	NJ	Forested	Oyster Creek	Barnegat Bay	7857	0.1804
Ocean	71.08	NB Median	MN-S	NJ	Emergent	Oyster Creek	Barnegat Bay	1361	0.0312
Ocean	71.12	NB Median	MN-S	NJ	Forested	Oyster Creek	Barnegat Bay	2426	0.0557
Ocean	71.31	SB Median	MN-S	NJ	Forested	Oyster Creek	Barnegat Bay	42	0.0010
Ocean	71.67	SB Median	MN-T	NJ	Forested	S. Br. Forked River	Barnegat Bay	59	0.0014
Ocean	71.68	NB Median	MN-T	NJ	Forested	S. Br. Forked River	Barnegat Bay	103	0.0024
Ocean	71.88	SB Media	MN-T	NJ	Emergent	S. Br. Forked River	Barnegat Bay	1382	0.0317
Ocean	71.90	NB Median	MN-T	NJ	Emergent	S. Br. Forked River	Barnegat Bay	851	0.0195
Ocean	72.92	SB Median	MN-V	NJ	Emergent	Middle Br. Forked River	Barnegat Bay	1756	0.0403
Ocean	72.97	NB Median	MN-V	NJ	Emergent	Middle Br. Forked River	Barnegat Bay	2079	0.0477
Ocean	72.97	NB Outer	NE-EE	NJ	Emergent	Middle Br. Forked River	Barnegat Bay	931	0.0214

Ocean	74.66	NB Median	MN-X	NJ	Scrub-Shrub	N. Br. Forked River	Barnegat Bay	1293	0.0297
Ocean	74.85	NB Median	MN-X	NJ	Open Water	N. Br. Forked River	Barnegat Bay	694	0.0159
Ocean	74.86	NB Median	MN-X	NJ	Scrub-Shrub	N. Br. Forked River	Barnegat Bay	919	0.0211
Ocean	74.86	SB Median	MN-X	NJ	Scrub-Shrub	N. Br. Forked River	Barnegat Bay	850	0.0195
Ocean	74.86	SB Median	MN-X	NJ	Open Water	N. Br. Forked River	Barnegat Bay	389	0.0089
Ocean	74.87	SB Median	MN-X	NJ	Scrub-Shrub	N. Br. Forked River	Barnegat Bay	1345	0.0309
Ocean	74.87	NB Median	MN-X	NJ	Scrub-Shrub	N. Br. Forked River	Barnegat Bay	473	0.0109
Ocean	76.62	SB Median	MN-AA	NJ	Forested	Cedar Creek	Barnegat Bay	1745	0.0401
Ocean	76.81	NB Median	MN-AA	NJ	Scrub Shrub	Cedar Creek	Barnegat Bay	1506	0.0346
Ocean	76.82	NB Median	MN-AA	NJ	Open Water	Cedar Creek	Barnegat Bay	682	0.0157
Ocean	76.83	NB Median	MN-AA	NJ	Scrub-Shrub	Cedar Creek	Barnegat Bay	987	0.0227
Ocean	76.83	SB Median	MN-AA	NJ	Scrub-Shrub	Cedar Creek	Barnegat Bay	906	0.0208
Ocean	76.84	SB Median	MN-AA	NJ	Open Water	Cedar Creek	Barnegat Bay	507	0.0116
Ocean	76.84	SB Outer	NW-C	NJ	Open Water	Cedar Creek	Barnegat Bay	164	0.0038
Ocean	76.85	SB Outer	NW-C	NJ	Scrub-Shrub	Cedar Creek	Barnegat Bay	2039	0.0468
Ocean	77.37	NB Median	MN-BB	NJ	Forested	Cedar Creek	Barnegat Bay	1016	0.0233
Ocean	79.42	NB Median	MN-EE	NJ	Forested	Jakes Branch	Toms River	30	0.0007
Ocean	80.34	SB Median	MN-FF	NJ	Emergent	Jakes Branch	Toms River	255	0.0059
Ocean	80.35	SB Median	MN-FF	NJ	Open Water	Jakes Branch	Toms River	281	0.0065
Ocean	80.36	SB Outer	NW-AAA	NJ	Emergent	Jakes Branch	Toms River	841	0.0193
Ocean	80.39	NB Median	MN-FF	NJ	Emergent	Jakes Branch	Toms River	85	0.0020
Ocean	80.39	NB Median	MN-FF	NJ	Open Water	Jakes Branch	Toms River	420	0.0096
Ocean	80.40	NB Outer	NE-QQ	NJ	Emergent	Jakes Branch	Toms River	1131	0.0260
								<b>335735.00</b>	<b>7.707</b>

### 3.4 WILDLIFE

#### Affected Environment

By determining the habitat provided on the project site, it can be ascertained that certain wildlife species will be, or have the potential to be present in this study area. Wildlife species expected to be found in the project area include those species which typically co-habitate with humans such as White-tail Deer (*Odocoileus virginianus*), Eastern Cottontail Rabbits (*Sylvilagus floridanus*), Eastern Gray Squirrel (*Sciurus carolinensis*), Eastern Chipmunk (*Tamias striatus*), Opossum (*Didelphis virginiana*), and Groundhog (*Marmota monax*), along with a wide variety of avian (bird) species which pass by to nearby forested areas to rest and feed.

#### Proposed Impacts and Mitigation

The noise, dust, site disturbance, and human activity during construction generally cause the greatest stress among the wildlife communities. During construction, the wildlife populations will disperse from the immediate area; however, they will return after construction. Construction of the ramps and roadway work will result in the removal of minimal vegetation which provides food and cover to wildlife species. Minimal stress on the species indigenous to this habitat will remain. After construction, disruption of local communities will cease and indigenous wildlife populations will continue to inhabit the area.

### 3.5 THREATENED AND ENDANGERED SPECIES

An endangered and threatened species investigation for the GSP between Interchanges 30 and 80 was performed by Amy S. Greene Environmental Consultants, Inc. (ASGECI). This investigation, including surveys, was performed in the years 1998, 1999, and 2000 and was performed as part of the planning process for an extensive widening project. In 2006, ASGECI obtained an updated search of the New Jersey Natural Heritage Program database, and coordinate with the US Fish and Wildlife Service to determine if any new species have been identified in the project area.

As the proposed project area is within the jurisdiction of both the NJDEP and the NJPC, both agencies were consulted in developing the methodology for performance of the endangered and threatened species investigation.

#### Affected Environment

The endangered and threatened species investigation methodology was developed through extensive agency coordination to comply with the requirements of the Pinelands Comprehensive Management Plan and NJDEP CAFRA Regulations. The purpose of the investigation was to identify habitat for endangered and threatened plant and animal species in order to avoid or minimize adverse impact to these species through project design. The methodology used to obtain these results is discussed in detail in a separate report entitled, "Endangered and Threatened Species Survey, Section I, Introduction and Methodology."



That report was distributed among the appropriate regulatory agencies (NJDEP, NJPC and US Fish and Wildlife Service) in mid-September 1999. The investigations resulted in mapping of habitat for endangered and threatened species within and adjacent to the project area. The investigation results were discussed in a report entitled “Endangered and Threatened Species Survey, Section II, Results.” That report was reviewed by appropriate agencies in early 2000, and comments on that report resulted in a further minor survey effort in the summer of 2000. Additional habitat for endangered and threatened species discovered during the year 2000 survey was incorporated into the habitat mapping. A report was prepared in February, 2002 presenting the results of the supplemental surveys. Endangered and threatened species habitat mapping has been updated to incorporate the year 2000 data.

Amy S. Green Environmental Consultants documented 14 endangered and/or threatened animal species and 18 endangered plant species inhabiting areas within or in close proximity to the project limits (See Table 3-3). Species accounts, including typical habitat, range, and status, are provided in the technical report.

The endangered and threatened species studies performed for the project between 1998 and 2000 were performed based on NJDEP and NJPC listings that were current during that time period. It is important to note that the lists of endangered and threatened species are modified periodically by the resource protection agencies. Changes made to the state and federal lists in 1999 were reviewed to determine if there would be impacts on the project or if additional surveys might be necessary. Two species that had formerly been listed as threatened, the great blue heron (*Ardea herodias*) and the little blue heron (*Egretta caerulea*) were removed from the NJ list of endangered and threatened species. Peregrine falcon was removed from the federal list, but remains on the State list as an endangered species. Additional mapping was prepared for areas of confirmed yellow crowned night heron feeding habitat. Amy S. Greene Environmental Consultants (ASGECI) has prepared an Endangered and Threatened Species Impact Assessment and Species Management Plan August 28, 2006 to identify suitable and potential habitat for threatened and endangered (T & E) plant and animal species as well as the investigation of known T & E species within the entire project corridor. Additionally, ASGECI prepared a Survey of Federally listed Plant Species dated October 9, 2006 at the request of the US Fish and Wildlife Service (USFWS) to determine if there will be any direct impacts to these sensitive species. As indicated in these reports, the proposed project will impact approximately 68 acres of T & E Habitat. Direct impacts to known populations of T&E species are not expected to result from the project. Short-term impacts related to construction activities will be managed in accordance with NJDEP and NJPC requirements as well as the Species Management Plan. Measures such as timing restrictions, exclusion fencing, and the presence of qualified biologists at work sites will be utilized to prevent impacts to T&E species during construction.

The January 2007 update prepared by Amy S. Greene Environmental Consultants has been forwarded to all agencies for review.



TABLE 3-3  
DOCUMENTED ENDANGERED AND THREATENED SPECIES OF  
CONCERN IN THE PROJECT CORRIDOR

Common Name	Scientific Name	Federal Status	NJ State Status	Pinelands Comm. Status	Global Element Rank	State Element Rank
<b>ANIMALS</b>						
Pine barrens treefrog	<i>Hyla andersonii</i>	--	E	Listed	G4	S3
Cope's gray treefrog	<i>Hyla chrysoscelis</i>	--	E	Listed	G5	S2
Eastern tiger salamander	<i>Ambystoma tigrinum tigrinum</i>	--	E	Listed	G5	S2
Northern pine snake	<i>Pituophis melanoleucus melanoleucus</i>	--	T	Listed	G4	S3
Yellow-crowned night heron	<i>Nyctanassa violacea</i>	--	T	Listed	G5	S2B
Northern harrier	<i>Circus cyaneus</i>	--	E / U	Listed	G5	S1B, S3N
Osprey	<i>Pandion haliaetus</i>	--	T / T	Listed	G5	S2B
Cooper's hawk	<i>Accipiter cooperii</i>	--	T / T	Listed	G5	S3B, S4N
Red-shouldered hawk	<i>Buteo lineatus</i>	--	E / T	Listed	G5	S1B, S2N
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	E	Listed	G4	S1B, S2N
Peregrine falcon	<i>Falco peregrinus</i>	--	E	Listed	G4	S1B, S2N
Barred owl	<i>Strix varia</i>	--	T / T	Listed	G5	S3B
<u>Red Headed Wood Pecker</u>	<i>Melanerpes erythrocephalus</i>	<u>T</u>	<u>T</u>	<u>Listed</u>	<u>G5</u>	<u>S3</u>
<u>Timberhead Snake</u>	<i>Crotalus b. horridus</i>	<u>E</u>	<u>E</u>	<u>Listed</u>	<u>G4 T4</u>	<u>S2</u>
<b>PLANTS</b>						
Pine barrens reedgrass	<i>Calamovilfa brevipilis</i>	--	--	Listed	--	--
Barratt's sedge	<i>Carex barrattii</i>	--	--	Listed	--	--
Sickle-leaved golden aster	<i>Chrysopsis falcata</i>	--	--	Listed	G3G4	S3
Broom crowberry	<i>Corema conradii</i>	--	E	Listed	G4	S1
Pine barrens boneset	<i>Eupatorium resinosum</i>	--	E	Listed	G3	S2
Pine barrens gentian	<i>Gentiana autumnalis</i>	--	--	Listed	G3	S3
Crested yellow orchid	<i>Habenaria cristata</i>	--	--	Listed	--	--
Swamp pink	<i>Helonias bullata</i>	T	E	Listed	G3	S3
New Jersey rush	<i>Juncus caesariensis</i>	--	E	Listed	G2	S2
Torrey's muhly or pine barrens smoke grass	<i>Muhlenbergia torreyana</i>	--	--	Listed	G3	S3
Yellow or bog asphodel	<i>Narthecium americanum</i>	C	E	Listed	G2	S2
Floating heart	<i>Nymphoides cordata</i>	--	--	Listed	G5	S3
Knieskern's beaked rush	<i>Rhynchospora knieskernii</i>	T	E	Listed	G1	S1
Slender arrowhead	<i>Sagittaria teres</i>	--	E	--	G3	S1
Curly grass fern	<i>Schizaea pusilla</i>	--	--	Listed	G3	S3
Slender nut rush	<i>Scleria minor</i>	--	--	Listed	--	--
Purple bladderwort	<i>Utricularia purpurea</i>	--	--	Listed	G5	S3
Reclined or reversed bladderwort	<i>Utricularia resupinata</i>	--	E	Listed	G4	S1

**NOTES:**

- 1) Status information per New Jersey Natural Heritage Database Web Site, October 2001.
- 2) Status Codes: E= Endangered; T = Threatened; C = Federal Candidate; -- = No status assigned.
- 3) Status for animals separated by a slash (/) indicate a dual status. The first status refers to the state breeding population, and the second status refers to the migratory or winter population.
- 4) Some Pinelands Listed plant species are not listed in the Natural Heritage Database information. In these cases, global and state element ranks are not defined, as indicated by "...".
- 5) Global Element Rank Definitions:
  - G1=Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
  - G2=Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
  - G3=Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state, a physiographic region in the East) or because of other factors making it vulnerable to extinction throughout its range; with the number of occurrences in the range of 21 to 100.
  - G4=Apparently secure globally; although it may be quite rare in parts of its range, especially at the periphery.
  - G5=Demonstrably secure globally; although it may be quite rare in parts of its range, especially at the periphery.
- 6) State Element Rank Definitions:
  - S1=Critically imperiled in New Jersey because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres).
  - S2=Imperiled in New Jersey because of rarity (6 to 20 occurrences). Also, species which occur in habitats restricted to 10% total of the state.
  - S3=Rare in state with 21 to 100 occurrences. Species ranked S3 are not yet imperiled in state but may soon be if additional populations are destroyed.
  - S4=Apparently secure in state, with many occurrences.
  - B=Refers to the breeding population of the species in the state.
  - N=Refers to the non-breeding population of the species in the state.
  - ?=To express uncertainty, a question mark is added.

### Proposed Impacts and Mitigation

The results of the endangered and threatened species investigation were utilized in the final design of the preferred alternative, which is shown on the plan set entitled "Threatened Species Mapping", dated January 2007. The project plans were developed to avoid or minimize impacts to endangered and threatened species and their habitat to the extent practicable. Analysis of impacts is based on this plan set.

Of the 14 endangered and/or threatened animals identified in the immediate vicinity of the GSP, the confirmed or suspected habitat of 11 species will be impacted. Of the 18 endangered and/or threatened plants identified, the confirmed habitat of 2 species will be impacted. The impacts that will occur are associated with activities such as grading, paving, clearing of trees, and placement of water quality and stormwater management features. The long-term impacts resulting from the project include loss of existing habitat of threatened and endangered species. These losses are not expected to result in effects to existing populations.

Indirect impacts, such as changes in hydrology sedimentation into wetlands and waterways, have been addressed in the design, primarily by using existing natural drainage.

To address short-term construction impacts, measures will be incorporated into the project plans and specifications to minimize impacts to habitat for endangered and threatened species. Measures include:

- Demarcating the limit of proposed clearing and grading with high visibility construction fencing to avoid unnecessary vegetative clearing or movement of construction equipment. In areas where endangered and threatened species habitat is present within the limits of disturbance, a combination of silt fence and construction fence is recommended, in order to prevent sedimentation (of particular importance in or near wetland areas). Construction fencing should be utilized wherever there is potential for construction vehicles to move into areas of threatened and/or endangered species habitat. Qualified personnel (such as a biologist or botanist) should be present for the installation of fencing and other soil erosion devices.
- Having qualified environmental monitoring personnel in the field during construction to ensure that the project plans are followed and to possibly relocate any wildlife species (e.g. reptiles or amphibians) that may be observed within the construction zone.

The resource protection agencies (NJDEP, NJPC and US Fish and Wildlife Service) may require seasonal restrictions on construction in the habitat of selected species during breeding and nesting seasons or other measures.

Specific measures suggested for the endangered and threatened species for which habitat will be impacted are provided below.

➤ Amphibians

Of the three threatened / endangered amphibians identified in the vicinity of the project area, the buffer habitat of two will be impacted. The two species are pine barrens treefrog (*Hyla andersonii*) and Cope's gray treefrog (*Hyla chrysocelis*). The habitat and life requirements for these species are provided in the technical report. The impacts are summarized in Table 3-4. No impacts are proposed in areas of known breeding ponds for endangered and/or threatened amphibians.

**Table 3-4  
E&T Amphibian Habitat Impact Summary**

Species / Habitat Type	Total Amount of Habitat to be Impacted <sup>1</sup>	Type of Impacts
Pine barrens treefrog -	.0040 ac.	Bridge extension and grading / vegetation clearing

1. The habitat of both species overlaps completely in the area to be disturbed; thus, the same total area will be impacted for each species.

The majority of the impacts will be permanent impacts, due to the extension of the bridge abutments and the placement of fill. Once construction is complete, the graded portion will be revegetated for stabilization, further minimizing this minor habitat impact.

The potential for indirect impacts to occur to amphibian habitat as a result of the project was also evaluated. Alteration of water chemistry or changes in water levels in breeding ponds can negatively impact amphibian species, which tend to have a narrow tolerance for alteration of these habitat characteristics. Short-term impacts associated with construction, as well as longer-term impacts (i.e., alteration of hydrology through diversion of runoff) were assessed to ensure that indirect impacts to endangered and threatened amphibian habitat would be prevented. Indirect impacts are not expected to negatively impact habitat.

The impacts to buffer habitat of the two amphibians that will be impacted, the Pine barrens treefrog and Cope's gray treefrog, are in the same location (the habitat overlaps). Impacts are, for the most part, temporary, as the area will be allowed to revegetate subsequent to construction. The area to be disturbed is minimal, but the clearing of vegetation should still be minimized as much as possible. Performing activities in this location outside of the breeding season for Pine barrens treefrog and Copes gray treefrog (March through July) would help to prevent disturbances to the breeding populations. If construction activities are to occur within the breeding season, a qualified biologist should be present for the vegetation clearing activities and the installation of protective fencing.

Proper construction management techniques would be employed in this location to be certain that clearing of vegetation and movement of construction vehicles are limited to the proposed area of impact.

➤ Reptiles

The threatened / endangered reptiles identified in the vicinity of the project area are the northern pine snake (*Pituophis melanoleucus melanoleucus*) and the Timber Rattlesnake (*Crotalus h. horridus*). The habitat and life requirements for these species are provided in the technical report. Areas of both mapped potentially suitable habitat and confirmed habitat for this species will be impacted, with the majority of impacts occurring in areas of potentially suitable habitat. The impacts are summarized in Table 3-5.

**Table 3-5**  
**E&T Reptile Habitat Impact Summary**

**Note: This table includes the reduction of overlap areas for the reptile species.**

Species / Habitat Type	Total Amount of Habitat to be Impacted	Type of Impacts
Northern pine snake	<u>33.4686 ac.</u>	Paving and grading construction; all involve clearing of forested areas.
<u>Timber Rattlesnake</u>	<u>0.3732 ac.</u>	Paving and grading construction; all involve clearing of forested areas.

The majority of the impacts will be permanent impacts to habitat, as impacts involve clearing of forested areas. However, due to the extensive amount of potentially suitable habitat available in the vicinity of the project area, it is not expected that the loss of habitat associated with the project would impact the ability of existing populations to successfully breed, forage and hibernate. The proposed action concentrates disturbances along the edges of habitat, and does not significantly fragment large expanses of habitat. The clearings may provide a positive impact, as they may be used by the snakes for basking in areas where tree cover is otherwise dense.

Maintenance of the grassed areas will require periodic maintenance (i.e., mowing), which will be performed by the NJTA. In areas of confirmed habitat, a mowing plan will be developed to prevent potential impacts to snakes that may utilize these areas.

Permanent impacts to the Northern pine snake include loss or alteration of habitat (33.4686 acres of habitat identified as potentially suitable). Permanent impacts to the Timber rattlesnake include loss or alteration of habitat (0.5723 acres of habitat identified as potentially suitable). It is not expected that the habitat loss will negatively affect the ability of existing populations to breed, forage or hibernate successfully.

Short-term construction impacts will require careful management to prevent injury or mortality of these highly mobile animals. The following measures are suggested as methods to minimize habitat impact, and to avoid impacting individual snakes.

Demarcating the limit of proposed clearing and grading with construction fencing in areas of both suitable and confirmed habitat will aid in avoiding unnecessary vegetative clearing, soil disturbance, or

movement of construction equipment. Measures to control soil erosion and sedimentation will be implemented to prevent unnecessary disturbance to habitat.

In areas of potential habitat, a qualified biologist should be present for all construction activities, including site preparation (installation of construction fence/silt fence, equipment staging, etc.) This is of particular importance since these animals are so highly mobile during their active seasons, and are quite vulnerable during periods of hibernation if a den site were to be disturbed. The locations of den sites are, for the most part, not known, and are not easily identifiable.

As an alternative to seasonal timing restrictions (October through April), snake fencing could be installed along the limits of proposed disturbance in areas of potential habitat during the period of hibernation prior to construction. This should prevent the snakes' movement into construction areas while construction is occurring. This could result in a temporary disturbance to the snakes' movement patterns, but should not prevent the snakes from being able to breed successfully. In general, the GSP appears to form a habitat boundary, so installing snake fences parallel to the GSP is not expected to divide an area of habitat. The snake fencing could be a modified (higher) version of the combination of silt fence and construction fence, buried to a depth of 12", and with a bend toward the outside of the construction area at the top of the fence to discourage the snakes from climbing over.

Once the fencing is installed, the areas of confirmed habitat that will be disturbed should be checked by qualified biologist(s), both to clear the area of snakes and other animals, and to confirm that no den sites are located within the area to be disturbed.

### ➤ Birds

Habitat impacts are projected for the following endangered or threatened birds: Cooper's hawk (*Accipiter cooperii*), barred owl (*Strix varia*), northern harrier (*Circus cyaneus*), peregrine falcon (*Falco peregrinus*), osprey (*Pandion haliaetus*), and bald eagle (*Haliaeetus leucocephalus*). Information on the habitat and life requirements of these species is provided in the technical report. Of these species, only the bald eagle is federally listed (Federal-T, State-E).

The impacts to the habitat of each species are summarized in Table 36.

**Table 3-6**  
**E&T Bird Habitat Impact Summary**

**Note: This table includes the reduction of overlap areas for the bird species and removal of the osprey habitat.**

Species / Habitat Type to be Impacted	Total Amount of Habitat to be Permanently Impacted <sup>1</sup>	Type of Impacts
Cooper's hawk    Some impacts may be within a few hundred feet of nest locations.	<u>11.3480 ac.</u>	Construction of grading, and paving; involves tree removal.
Barred owl	<u>10.1054 ac.</u>	Construction of grading; involves tree removal.
Northern harrier — potential nesting habitat	<u>.4078 ac.</u>	Grading associated with bridge abutment improvements at

		Patcong Creek and grading and paving associated with expansion of bridge over Mullica River. Impacts will occur to the upper edges of high marsh habitat.
Yellow Crown Night Heron – potential nesting habitat	0.0530 ac.	Construction of grading; involves tree removal.
Peregrine falcon – feeding habitat, potential nesting habitat	<u>2.1769 ac.</u>	Grading and paving associated with expansion of bridge over Mullica River. No direct impacts to habitat. Temporary construction concerns only.
Osprey – Temporary construction impacts would occur within a few hundred feet of nest locations (one nest is approx. 75' from the GSP)	<u>0.00 ac.</u>	Grading and paving associated with expansion of bridge over Mullica River. No direct impacts to habitat. Temporary construction concerns only.
Bald Eagle	7.8199ac.	Grading and paving associated with expansion of bridge over Mullica River. No direct impacts to habitat. Temporary construction concerns only in areas with a line of sight from the nest.
<u>Bald Eagle- Foraging Area</u>	<u>3.9644 ac.</u>	<u>Grading and paving associated with expansion of bridge over Mullica River. No direct impacts to habitat. Temporary construction concerns only in areas with a line of sight from the nest</u>
Red Headed Woodpecker	<u>1.1282 ac.</u>	<u>Construction of grading and paving; involves tree removal.</u>

The majority of the impacts to birds will be permanent impacts to potential habitat. Impacts such as clearing and grading will result in permanent loss of habitat, or permanent modification. As impacts will occur at the outer edges of the various habitat types (i.e., forest, marsh) significant fragmentation of existing habitat will not occur. It is not expected that the loss of habitat associated with the project would prevent existing populations to successfully breed, forage and hibernate. As with other endangered and threatened species impacted by the project, temporary impacts associated with construction activities have greater potential to impact bird species, and will require careful management.

A brief analysis of the impacts to endangered and threatened bird species habitat along with avoidance, minimization and mitigation techniques are discussed below.

Permanent impacts to the species include loss or alteration of habitat of six threatened or endangered bird species. It is not expected that the habitat loss will fragment areas of existing habitat, or negatively affect the ability of existing populations to breed or forage successfully. Measures specific to the six species of birds to be impacted are provided below.

### Cooper's Hawk

Impacts to Cooper's hawk habitat will occur in multiple locations, and involves clearing of the forested areas that this species utilizes for nesting and foraging activities. Disturbance associated with paving of existing habitat is minimal. Areas that will be cleared as a result of grading will be revegetated subsequent to construction. Grading activities associated with either the widening of the GSP lanes will provide edge habitat that can serve as foraging areas for the Cooper's hawk.

Depending on nest locations, construction activities could be disruptive to this species during its breeding season (May 15 – August 15). Certain activities may have timing restrictions imposed on them by the NJDEP. It is recommended that surveys be performed during the breeding season immediately prior to construction to ascertain if an active nest is located in the area, which could help determine if timing restrictions would be necessary, and to what extent.

Depending on the distance of a nest from the road, and the vegetation communities in the vicinity, it may be possible to limit timing restrictions to the side of the GSP on which a nest is located (i.e., if a nest is located on the southbound outside, and there is sufficient tree coverage in the median, no timing restriction would be necessary for work to be performed on the northbound side of the GSP.

### Barred Owl

Impacts to confirmed barred owl habitats are limited to one location, in the vicinity of Interchange 69.

Impacts to the existing forest edge constitute a permanent loss of habitat for the species, but are not expected to negatively impact the utilization of the area by the barred owl. The location of the impact is the outermost limit of the mapped habitat, and is already exposed to disturbance through anthropogenic influences. This owl tends to nest in more interior areas, with large tracts of undisturbed forest dominated by mature and old growth stands and high canopy cover (Bosakowski et al. 1987, Bosakowski 1989).

While permanent loss of habitat is not expected to have a measurable impact on the species, temporary disturbances associated with construction will need to be carefully managed to ensure that nesting owls, which are quite sensitive to disturbance, are not disrupted during the breeding season.

The location of the nest would determine if timing restrictions would be necessary for work to be performed in this area. It is recommended that surveys be performed during the breeding season immediately prior to construction to ascertain if an active nest is located in the area, which could help determine if timing restrictions would be necessary. Due to the sensitivity of this species, it is recommended that if a nest is determined to be located within 1,000 feet of the area to be disturbed, a timing restriction be imposed during the breeding season (March 1 through September 30).



## Osprey

The active osprey nests (3) within the area of the Mullica River have been permitted to be removed drastically reducing the impacts to this species habitat. The remaining habitat that will be impacted is located at milepost 50.42-50.50 and 50.37-50.39.

Paving, grading and bridge widening activities will directly impact habitat within the home range of the ospreys. As the proposed activities have minimal impacts on open water where the birds forage, and do not directly impact nest locations, the direct loss of habitat within the home range is not expected to have a negative impact on the ospreys. Indirect impacts related to temporary construction activities need to be managed appropriately so as to minimize impacts to the ospreys.

Ospreys in some locations, such as those adjacent to the GSP, are obviously tolerant of some human associated activity (i.e., automobile traffic). However, a deviation from the type of activity that occurs in the vicinity of the nest during the breeding season (such as the presence of humans on foot, construction activities with large machinery) could disturb the birds, possibly causing nest abandonment during the breeding season. The ospreys have historically been noted by the NJDEP and it is not expected that all of the nest locations would change or be abandoned before the project is constructed.

In similar situations, osprey nests have been successfully relocated prior to the breeding season to avoid disturbance to breeding birds by construction activities. In Montana, a nest was relocated in late fall to an artificial nesting platform approximately 300 meters (approximately 1,000 feet) downstream from the bridge. Upon their return, the nesting pair took up residency on the new platform and appeared virtually uninterrupted by the rehabilitation activities taking place on the nearby bridge (Wambach et al, 2002).

The NJTA received approval to relocate three existing nests adjacent to the Mullica River Bridge. This effort is being coordinated through the Conserve Wildlife Foundation of New Jersey and the Division of Fish Game and Wildlife. As a mitigation offset for the removal of the two nests, the NJTA must provide nine new nesting structures. These nests will be located greater than 1,300 feet from the existing bridge in an effort to prevent disturbance of the Osprey during the breeding / nesting season (June 1 – August 30).

## Northern Harrier

Northern harrier was observed using portions of the high marsh communities associated with the Patcong Creek, and the Mullica River and its tributaries. The majority of the impacts would occur in the vicinity of the Mullica River. In many locations, the marsh community is located in close proximity to the road and will be impacted by GSP widening and bridge construction. The wide expanse of marsh present at this location provides both nesting and foraging habitat for this species.

In comparison to the extent of habitat present, the loss of this habitat area is not expected to create a long-term impact to the breeding population that utilizes this area. Impacts are restricted to the corridor within the marsh edge, which offers slightly less suitable habitat than areas located further from the GSP due to proximity to traffic.

Temporary construction impacts could result from general construction activities, which could limit the birds' foraging or nesting activities.

Temporary construction impacts could result from general construction activities, which could limit the birds' foraging or nesting activities. It is recommended that surveys be performed by a qualified ornithologist during the breeding season prior to construction to more specifically determine if there are any actual nesting locations within or close to limits of disturbance. Depending on the distance of nests from the road it may be possible to reduce or remove timing restrictions, or to limit the types of activities that can be performed during the breeding season (April 15 – August 15).

#### Peregrine Falcon

The peregrine falcon has been observed on the GSP bridge over the Mullica River. It is possible that it may utilize the bridge for nesting purposes in the near future, since it is the most suitable habitat in the near vicinity. Peregrines frequently nest on high bridges and building ledges. Peregrines require the presence of ledges that are relatively inaccessible to mammalian predators and also provide protection from the elements.

Paving, grading, and bridge widening activities are proposed within the home range of the peregrine falcon. As the proposed activities have minimal impacts on actual foraging habitat, the direct loss of habitat within the home range is not expected to have a negative impact on the peregrine falcon. The bridge will remain in place subsequent to construction and will continue to provide nesting locations for this species.

Although the existing GSP bridge over the Mullica River will remain in place, the operation of heavy equipment around and especially under the bridge could disturb a nesting peregrine falcon. No actual nest has been historically recorded at the bridge. It is recommended that a qualified ornithologist survey the bridge during the two breeding seasons prior to construction to determine if there is actually a nest (or nests) being utilized. If it is determined that the peregrine falcon definitely nests on the bridge, then one of two options is recommended. Similar to the above discussion on the osprey, based on discussions with USFWS in the past, it is possible to provide a nesting platform to which the peregrine falcon may relocate, at locations of sufficient distance from the disturbance that the birds can nest and breed successfully. The relocation of nests could provide additional habitat for the peregrines subsequent to completion of the project, depending on the spacing of the nest platforms. Created nests would be left intact, leaving the larger bridge structure as available nesting habitat as well.

If it is not possible to relocate the nests, then it is likely that seasonal timing restrictions will be imposed by NJDEP for some construction activities that would occur to the bridge to prevent disturbance during the breeding season (May 25 through August 30).

#### Bald Eagle

The project area is located within the home range of a bald eagle wintering area. The roosting area is located in the vicinity of Westecunk Creek to the west of the GSP (southbound outside).

There is also a bald eagle nest in the vicinity of the GSP, located approximately two miles to the northwest of the Mullica River (near Nacote Creek). The nesting territory that USFWS associates with bald eagle nests is typically ¼ to ½ mile, although activities that are at a greater distance, but are within the line-of-sight of the nest, can also be viewed as impacts.

The activities proposed within bald eagle habitat include paving, grading and the construction of drainage improvements, including improvements to the culverts associated with Westecunk Creek within the median. All activities within bald eagle wintering habitat will occur within the median. As the proposed activities have minimal impacts on actual foraging habitat, the direct loss of habitat within the home range is not expected to have a negative impact on the bald eagle. Impacts related to temporary construction activities that may occur within the line-of-sight of the nest are more likely to disturb nesting bald eagles.

Although impacts to bald eagle habitat are not expected as a result of habitat loss, temporary disturbances associated with construction could disturb the nesting pair near the Mullica River (Nacote Creek). In order to determine the potential for disturbance, the line of sight would have to be determined. It is possible that some activity areas, particularly along the northbound side of the GSP, may be blocked by sufficient forest cover or topography to prevent disturbance to the nest. Tree clearing necessary for the improvements would ideally be performed during the non-breeding season.

For areas determined to be within the line of sight of the nest, it is likely that the USFWS will impose timing restrictions on some construction activities during the breeding season (April 15 through August 15).

#### Yellow-Crowned Night-Heron

Impacts to the foraging habitat of this species is limited to where the widening crosses Patcong Creek. The impacts occur on the southern side of the southbound bridge, and on the northern and southern side of the northbound bridge. The total impact area is 792 square feet. This minor loss of foraging area is not expected to impact the species ability to forage successfully in this area.

#### Red Headed Woodpecker

An updated review of the landscape project mapping revealed a presence of a red headed woodpecker habitat between MP 40.65 to 41.3 (Sheets 40-43). Impacts to redheaded woodpecker habitat totaling 1.13 ac will occur within the outside southbound lanes. Overall, it is not anticipated that the impacts to the mapped habitat associated with the proposed project will have a permanent impact on existing breeding populations of redheaded woodpecker, or the impacts will detract from overall quality of habitat. Measures to be taken to minimize disturbance to habitat and prevent disturbance during breeding season (March 15- September 1) are discussed in the Species Management Plan included herein section 5.

#### ➤ Plants

The threatened and endangered plants for which known habitat will be directly impacted by the project are New Jersey rush (*Juncus caesariensis*) and Pine barrens boneset (*Eupatorium resinosum*). The impacts are summarized in Table 3-7, below.

**Table 3-7  
E&T Plant Habitat Impact Summary**

Species / Habitat Type	Total Amount of Habitat to be Impacted	Type of Impacts
Pine barrens boneset	0.0548 ac.	Bridge extension and grading
New Jersey rush	0.0215 ac.	Drainage and grading

Impacts to the habitat of a known population of Pine barrens boneset may occur in the vicinity of the spillway of the Atlantic City Reservoir outfall, where new wingwalls are proposed in the median. This plant was originally observed (in 1998) only to the immediate east and west of the GSP. In 1999, reconstruction of the spillway (performed by others) may have eliminated a portion of the population to the west of the GSP. The plant was not observed in the vicinity in 1999. However, this particular plant grows well in disturbed emergent wetland areas; therefore it may reappear in any areas within the mapped habitat limit prior to construction, most likely on alluvial islands within the stream or along the stream banks. A survey for the plant during the appropriate season (late July to September) within the 2 years prior to construction would be necessary to determine whether any actual populations would be impacted.

Impacts to documented New Jersey rush habitat will occur at the Middle Branch of Forked River on the southbound inside of the GSP. The impact will be from grading and paving and replacement of a headwall. Actual New Jersey rush populations have not been observed in the impact area, but one was observed by ASGECI further toward the center of the median. This population was somewhat unusual because this species does not usually grow in such densely vegetated areas. However, a fire occurred in this area and opened the Atlantic white cedar canopy. As the canopy fills back in through regrowth, this population is likely to disappear naturally.

Many of the endangered or threatened plant species identified in the Results Report (ASGECI 2000) are wetland -dependent plants. As such, the potential for indirect impacts to occur as a result of the project was also evaluated. Alteration of water chemistry or changes in water levels can negatively impact wetland - dependent species which, like amphibians, tend to have a narrow tolerance for alteration of these habitat characteristics. Short-term impacts associated with construction, as well as longer-term impacts (i.e., alteration of hydrology through diversion of runoff) were assessed to ensure that indirect impacts to endangered and threatened plant habitat would be prevented.

Impacts to the habitat of known populations of Pine barrens boneset and New Jersey rush will occur as a result of the project. Survey for the plant during the appropriate season (Pine barrens boneset - late July to September; New Jersey rush – July to October) should be performed by qualified botanists within the 2 years prior to construction would be necessary to determine whether any actual populations would be impacted.

A qualified botanist should also review the area immediately prior to construction. If either plant is present within areas to be disturbed, the plants should be relocated by the botanist to another location within the same habitat area. In addition, any populations located near the limits of disturbance should be fenced off to prevent accidental impacts.

The use of silt fence and other methods to prevent sedimentation, particularly in wetland areas, will be important in the protection of the many endangered plant populations. In areas where threatened or endangered plant habitat occurs within 30 feet of the limit of disturbance, a qualified botanist should be present for the installation of fencing and other soil erosion devices. The botanist will search the area for plants, as well as observing construction activities to be sure that construction workers and vehicles remain within proposed limits of disturbance.

As part of overall mitigation for the project, several areas are present in the vicinity of the GSP which could be improved or modified to provide habitat for endangered / threatened species. One area, located on the northbound outside near interchange 74, appears to have once been a wetland area that historically contained endangered plants. Restoring the hydrology of this area could also restore habitat for wetland-dependent plant species.

An additional area is located just north of Interchange 69, on the southbound outside. Within the wetland habitat in this location, common reed (*Phragmites australis*) has invaded the vegetation community and can quickly become the dominant species. A large population of bog asphodel (a Federal candidate for listing) is present, which may be outcompeted by the common reed as it becomes more dominant. In order to preserve this population, qualified botanists could hand-remove the common reed. Due to the extreme invasiveness of the common reed, this process would likely need to be repeated over several seasons.

Please note: Additional stormwater management (SWM) features have been requested by the NJ Pinelands Commission and the NJDEP in their review of the present SWM calculations. These additional swales will be located in the median only and will ultimately impact suitable T & E Habitat.

The increase in T & E suitable habitat has already been accounted for in the NJTA's mitigation proposal to the NJDEP and NJPC.

## 3.6 SURFACE WATER RESOURCES AND FLOODPLAINS

### Affected Environment

The following table presents the surface water bodies which cross the GSP between Interchange 30 and 80:

**Table 3-8  
Rivers And Streams**

<b>Drainage Basin</b>	<b>Stream</b>
Toms River	Jakes Branch
Cedar Creek	Cedar Creek
Forked River	N. Branch, Forked River Middle Branch, Forked River South Branch, Forked River Oyster Creek N. Branch Waretown Creek Four Mile Branch Mill Creek Cedar Run Westecunk Creek Shrods Mill Branch
Mullica River	Jobs Creek Bass River Mathis Creek Loveland Thorofare: Mullica River Nacote Creek Clarks Mill Stream Morses Mill Stream Mattix Run North Branch Absecon Creek Ingersolls Branch, Absecon Creek: Maple Run Mill Branch Little Maple Run Patcong Creek Mill Creek

The major tidal rivers that cross the GSP are the Patcong Creek, Mullica River and Bass River. Other freshwater streams cross the GSP as well which have associated floodplain limits. Natural floodplain characteristics (i.e., riparian vegetation, flood storage capacity) would be minutely affected by the widening. Additionally, the majority of the affected 100-year floodplain areas are tidally influenced.

### Proposed Impacts and Mitigation

The widening project will have an impact to surface waters by adding storm water runoff to the waterways and increasing the amount of road related contaminants discharging to the receiving waterways due to the addition of new impervious surfaces. A storm water management plan has been developed to provide the best management practice to address the drainage issues for the entire length of the project.

Minor fill material will be placed within the 100-year floodplain associated with fluvial flooding (i.e., floods caused entirely by runoff from rainfall in the upstream drainage area and not influenced by the tide) and Stream Encroachment Permit(s) will be obtained from NJDEP. Stream Encroachment Permit(s) will be sought from NJDEP for the construction of any structure (i.e., culvert headwalls) within the 100-year floodplain.

The preferred alternative for this project will be located within the floodplain area of the Mullica and Bass Rivers and the Patcong and Cedar Creek as well as many smaller streams. The proposed preferred alternative will attempt to minimize all floodplain impacts through the use of an approved drainage study and the construction of bridges where applicable. Further information concerning floodplain impacts can be found in *Technical Memorandum #3: Preliminary Drainage Study* and *Technical Memorandum #8: Stormwater Management*.

## **3.7 AIR QUALITY**

The GSP proposed widening project may change travel patterns and alter traffic conditions and roadway configurations along the project corridor. The purpose of the air quality analysis is to identify the potential air quality effects associated with these changes. The proposed widening, which is not anticipated to change regional Vehicle Miles Traveled (VMT) in the study area to a level that will measurably affect peak hour speeds, should not result in substantial changes in regional carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), or volatile organic compound (VOC) pollutant burdens.

For estimating potential traffic-related air quality impacts, the pollutant of major concern is CO. Potential impacts of the proposed project were estimated by comparing estimated CO levels at critical locations adjacent to the GSP with and without development of the project.

A negative impact on air quality can be expected to occur on a short-term basis due to construction. Sources of air pollution typically associated with roadway construction include construction equipment exhaust and dust generation. Although vehicles are the primary source of carbon monoxide pollution, other sources of hydrocarbons, nitrogen oxides, and trace metals emissions exist at typical construction sites. Such sources include space heaters, generators and machinery. Localized incidents of high levels of particulates may result temporarily during construction. Typical suspended particles include windblown dust and ash. Potential sensitive receptors will be limited to on-site workers. Dust reducing measures as detailed in the Soil Erosion and Sediment Control Plan should reduce generated dust. The use of proper exhaust filters on all construction vehicles will minimize pollutant emissions.

### Affected Environment

National ambient air quality standards (NAAQS), established by the United States Environmental Protection Agency (USEPA) for CO, are a one-hour average concentration of 35 ppm and an eight-hour average concentration of 9 ppm, both of which should not be exceeded more than once per year. These standards are also adopted as official ambient air quality standards for the State of New Jersey. The results of the air quality analysis for this project are compared with these standards.

The highest ambient pollutant levels monitored at locations near the project corridor are within the national and state ambient air quality standards for the pollutants monitored, with the exception of ozone (O<sub>3</sub>), where exceedances of the one-hour standard were recorded at the monitoring site located at Colliers Mills in Ocean County in 2004.

### Proposed Impacts and Mitigation

Air quality analyses were performed using the most recent version of the EPA mobile source emission factor model, Mobile5AH, and the EPA CAL3QHC (Version 2.0) air quality mobile source dispersion model for the AM peak traffic period. This is the period when the greatest air quality effects of the proposed project are expected.

Analysis sites were selected based on a screening procedure using roadway Level of Service (LOS) estimates, average travel speeds and changes in physical roadway configuration due to the proposed project. Locations where the greatest project-related air quality impacts are expected to occur were considered. The screening procedures were applied to all interchanges, ramps and toll plazas between interchange 30 and 80. Using these procedures, one analysis site, located between Interchanges 74 to 80, was chosen for detailed microscale analysis. This location was selected because it has high hourly traffic volumes, the greatest level of service change between No Build and Build conditions (F to C), and is located near sensitive land uses.

Intersection and ramp locations adjacent to GSP exit and entrance ramps were also considered since high CO levels are possible near stop and go traffic conditions at these locations. However, based on a review of traffic projections of peak hour volumes and levels of service, a detailed air quality analysis was not warranted at these locations because no change in either parameter is anticipated as a result of the proposed GSP widening. Toll plaza locations on the GSP between Interchanges 30 and 80 were also examined to determine if there will be an increase in vehicle queuing with the project and if any sensitive land uses are adjacent to these locations. However, based on the traffic study, with the electronic toll collection ("Easy Pass") that has been implemented on the GSP, no additional queuing is predicted to occur. In addition, based on existing land use information, no sensitive land uses are located near toll plazas on the GSP between interchange 30 and 80.

Peak eight-hr concentrations were obtained by multiplying the highest peak one-hr CO concentrations by factor of 0.7, a figure recommended by EPA and NJDEP to take into account change over eight hours in vehicle volumes, speeds, and meteorological conditions. A CO "background" level was added to estimated CO concentrations to account for CO entering the area from other sources upwind of the receptors. Based upon NJDEP guidelines, one-hr value of 5.0 ppm and eight-hr value of 3.5 ppm were used as background levels for this analysis.



Maximum one-hr and eight-hr CO levels were estimated for the existing year (2004), and the design year (2015) under Build and No-Build conditions.

Total estimated one-hr and eight-hr CO concentrations under 2004 Existing conditions, and 2015 No-Build and Build conditions are shown below. The values presented are the highest concentrations estimated at any of the receptors considered under any wind angle. All concentrations are below the one-hr and eight-hr NAAQS of 35 ppm and 9 ppm, respectively. The proposed project is not expected to cause or exacerbate a violation of the NAAQS or State of New Jersey ambient air quality standards. Generally, the 2004 Air Quality Report depicts a decreasing trend Statewide in the CO concentrations.

**Table 3-9  
Total Estimated CO Concentrations (ppm)**

Analysis Conditions	1-hr Concentration	8-hr concentration
2004 Existing	8.6	3.2
2015 No-Build	6.7	4.7
2015 Build	6.9	4.8
Applicable Standard	35	9

The proposed project is not included on the region's approved 2007-2010 Transportation Improvement Plan (TIP) and it must therefore demonstrate that it will not increase pollutant burdens in excess of No Build conditions in order to conform to the Clean Air Act Amendments of 1990 (CAAA) and the Final Conformity Rule. However, as stated previously, the proposed project will not increase VMT, and will have minimal affect on vehicular speeds. In addition, all maximum predicted CO concentrations for the No Build and Build conditions are below the applicable standards, and the proposed project is not expected to cause or exacerbate a violation of these standards.

Because the proposed project will not result in any significant increase to regional CO, NO<sub>x</sub> or VOC pollutant burdens, and is not expected to cause or exacerbate a violation of the CO standard, the GSP proposed widening project conforms with the goals set forth in the (CAAA) and the Final Conformity Rule.

### 3.8 NOISE

#### Affected Environment

Noise is an undesirable or unwanted sound perceived subjectively by the individual regardless of its origin. Acceptance of a certain noise level may vary among neighborhoods, individuals, and the time of day. Sound can affect all human activities and must be considered in local and regional land use planning. Noise associated with roadway traffic is generally considered to be a more or less constant noise level source. Highway noise is the sum of the noise levels associated with each individual vehicle. The dominant sources of traffic noise are usually the tires and exhaust. Other

significant sources of traffic noise are attributable to engines and transmissions. Actual levels of highway generated noise will vary with traffic conditions, road design, physical surroundings, topography, weather conditions and vehicle mix.

The customary unit of noise measurement is the decibel (dB). Decibels are expressed on a scale in which a perceived doubling in noise level corresponds approximately to an increase of 10 decibels, and a change of three decibels is about the smallest difference in sound level reliably perceived by the human ear. A-weighting is a method whereby the high frequencies are given extra weight because people are more sensitive to high frequency noise than to lower frequency noise. The A-weighted scale, designated "dBA", is used to represent a person's response to mixed frequency sound. **Table 3-10** shows the dBA noise level of some common noises.

A measurement of overall peak noise levels is the  $L_{eq}$ . The  $L_{eq}$  is the constant, average sound level which, over a period of time, contains the same amount of sound energy as the varying levels of the traffic noise.

The Federal Highway Administration (FHWA) has developed criteria to ensure that noise impacts are given adequate consideration during environmental assessments. In general, the identification of noise impacts and the consideration of mitigation measures, as appropriate, are required. According to FHWA-developed criteria, a change in noise level of 3 dBA is not noticeable; a change in 10 dBA results in a doubling of the noise level, and an exterior  $L_{eq}$  of 67 dBA is the threshold for abatement of noise. The existing noise level in the project area, although not specifically measured on-site, can be expected to be significant as a result of the existing GSP traffic levels.

**Table 3-10**  
**Common Indoor and Outdoor Noise Levels<sup>10</sup>**

<u>Very faint sounds</u>		<u>Loud sounds</u>	
Threshold of audibility	1 dBA	Stenographic room	70 dBA
Human breathing	5 dBA	School cafeteria	80 dBA
Average whisper	20 dBA		
<u>Faint sounds</u>		<u>Very loud sounds</u>	
Avg. residence w/o stereo playing	30 dBA	Noisy factory	85 dBA
Soft radio music in apartment	40 dBA	Noisy urban street	90 dBA
		Loud auto horn at 10 feet	100 dBA
<u>Moderate sounds</u>		<u>Deafening sounds</u>	
Average office	50 dBA	Accelerating motorcycle (a few feet)	110 dBA
Near freeway auto traffic	60 dBA	Threshold of feeling (hard rock band)	120 dBA
		Threshold of pain	130 dBA
		Near jet engine	140 dBA

<sup>10</sup> *The Noise Guidebook* prepared by the U.S. Department of Housing and Urban Development, 1985.

A noise study was performed and the results are contained in Technical Memorandum No. 11. Ambient noise levels were monitored during the period of August 17 through August 20, 1999 at 20 locations in the project corridor. The monitoring locations were composed of sensitive receptors including residential, educational, recreational, and community facilities. Results of the monitoring found that at two of the twenty locations the FHWA threshold was exceeded both in the peak AM and PM time frames and at one location the threshold was exceeded in the AM.

#### Proposed Impacts and Mitigation

Future (2015) traffic noise levels were estimated using the FHWA STAMINA 2.0 noise model. Traffic noise levels were estimated at 697 locations along the proposed project corridor and existing noise levels were estimated at receptors where field monitoring was not performed. At 110 receptor locations the FHWA threshold of 67 would be exceeded both in the peak AM and PM rush time frames. At 74 receptor locations, the FHWA threshold would be exceeded either in the peak AM or PM time frames. However, at no location does the increase exceed 3dBA, therefore, at all receptor locations there will be no perceived change in noise than exists now. In addition, the proposed project is generally constructed into the median, away from the receptors. In accordance with the criteria sighted in the noise analysis guidelines of the FHWA, NJDOT and the NJTA, noise abatement is not warranted.

Temporary impacts from noise will be associated with construction of the interchange and will occur within the immediate vicinity of the project. The magnitude of the construction-related impacts cannot be precisely predicted because of the various types of equipment to be used, the construction methods, and the variation in equipment duration. Based upon typical noise levels of construction equipment (refer to **Table 3-11** below), construction noise associated with the proposed activities can be estimated.

The proposed construction activity is not anticipated to significantly adversely affect surrounding land uses because such noise sources attenuate quickly with distance. In addition, noises associated with construction activities are temporary in nature, lasting only as long as the period of construction. Further proposed construction activities are also limited to normal working hours, thereby minimizing the impact to surrounding residential areas.

**Table 3-11**  
**Typical Noise Levels of Construction Equipment<sup>11</sup>**

<u>Source</u>	<u>Peak Noise Level (dBA)</u>	<u>-----Distance from Source-----</u>			
		<u>dBA at 50 ft.</u>	<u>dBA at 100 ft.</u>	<u>dBA at 200 ft.</u>	<u>dBA at 400 ft.</u>
Heavy Trucks	95	84-89	78-83	72-77	66-71
Pickup Trucks	92	72	66	60	54
Dump Trucks	108	88	82	76	70
Concrete Mixer 105	85	79	73	67	
Jackhammer	108	88	82	76	70
Scraper	93	80-89	74-82	68-77	60-71
Dozer	107	87-102	81-96	75-90	69-84
Paver	109	80-89	74-83	68-77	60-71
Generator	96	76	70	64	58
Shovel	111	91	85	79	73
Crane	104	75-88	69-82	63-76	55-70
Loader	104	73-86	67-80	61-74	55-68
Grader	108	88-91	82-85	76-79	70-73
Caterpillar	103	88	82	76	70
Snowmobile	94	78	72	66	60
Diesel Train	98	80-88	74-82	68-76	62-70
Mack Truck	91	84	78	72	66
Travelall	71	56	50	44	38
Jeep Wagoneer	78	63	57	51	45
Bus	97	82	76	70	54
Compact Auto	90	75-80	69-74	63-68	57-62
Passenger Auto	85	69-76	63-70	57-64	51-58
Motorcycle	110	82	76	70	64

According to the FHWA, a project is defined as having a traffic noise impact if either of the following conditions occur:

- Predicted noise levels ( $L_{eq}$ ) approach or exceed the Noise Abatement Criteria. Since a 3 dB change in noise levels is the threshold of perception, noise levels that approach the criteria are defined as occurring at 3 dBA less than these criteria.

<sup>11</sup> *The Environmental Impact Data Book*, Ann Arbor Science, 1980

- A substantial increase in predicted noise levels over existing noise levels even though the impact criteria level is not reached. This increase is considered to be 10 dBA or greater, which is roughly a doubling or more of the perceived noise levels. Increases in noise levels which approach 10 dBA may be evaluated and discussed as circumstances dictate.

The modifications to noise conditions resulting from the proposed project are not expected to be adverse. There are no sensitive receptors within 300 feet of the proposed project.

### 3.9 TRAFFIC

#### Affected Environment

The GSP currently carries a combination of inter-county commuter traffic, intra-county commuter and other destination trips and recreation traffic originate from outside the project area. As shown in Table 3-13, the existing (2005) average annual daily traffic (AADT) varies between 23,330 and 45,750. The variations between the sections are the result of the intra-county trips adding to the through trips in particular sections. The Interchange 74 to Interchange 80 segment has been experiencing delays to traffic due to capacity limitations since before 1995. Since 2005, the GSP from interchange 69 to Interchange 80 have also had the AADT exceed the roadway capacity. By 2025, the entire roadway within the project limits will fail. Currently (2006), 67% of the Garden State Parkway between Interchange 30 to 80, exceed the AADT lane capacity.

Development patterns and traffic demands have already necessitated improvements within the project area. A new interchange was constructed in the vicinity of milepost 77. New widened ramps and new traffic movements have been added to Interchange 35, Interchange 74 and Interchange 80. New ramps, new bridges for the widening and new traffic movements have been provided at Interchanges 40, 63 and 74, being constructed at Interchange 69, and are being designed for Interchange 67. Also widening improvements have been constructed in the Authority's Atlantic City Service Area/Jimmy Leeds Road area. The size of the Authority's Barnegat Toll Plaza has been reduced by providing Express EZ Pass in one direction and removing tolls in the other direction. This project will include reducing the toll plazas at New Gretna by providing Express EZ Pass in one direction and removing the tolls in the other direction.

**TABLE 3-12  
ANNUAL AVERAGE DAILY TRAFFIC VOLUMES**

Parkway Section	Length	Current Capacity	Proposed Capacity	Actual 1995 AADT	Actual 2005 AADT	Model Projected 2025 AADT	Year AADT Exceeds 2-Lane Capacity
Int 30-36	5.82	34,800	52,200	18,550	24,200	59,728	2013
Int 36-37	0.77	34,800	52,200	19,180	28,040	39,947	2018
Int 37-38	0.64	34,800	52,200	23,050	31,680	55,868	2009
Int 38-40	2.81	34,800	52,200	20,340	26,700	41,952	2017
Int 40 to AC Service	1.36	34,800	52,200	25,080	31,280	57,873	2009
AC Service - Int 44	2.58	34,800	52,200	18,580	23,330	42,627	2019
Int 44-48	4.31	34,800	52,200	19,720	25,870	44,736	2016
Int 48-50	2.38	34,800	52,200	22,590	28,580	55,022	2012
Int 50-52	2.03	34,800	52,200	18,630	23,850	46,431	2017
Int 52-58	5.99	34,800	52,200	18,800	24,280	47,059	2016
Int 58-63	5.42	34,800	52,200	20,650	27,040	46,404	2015
Int 63-67	3.70	34,800	52,200	21,520	30,180	37,820	2018
Int 67-69	2.64	34,800	52,200	26,070	37,320	48,732	2004
Int 69-74	4.89	34,800	52,200	25,040	36,000	46,995	2005
Int 74-80	5.51	34,800	52,200	32,620	45,750	61,112	1997

### Proposed Impacts and Mitigation

A traffic report, Technical Memorandum No. 7, was prepared to assess the future capacity needs between Interchange 30 and Interchange 80. Related to this report were the following previous studies, the Garden State Parkway Comprehensive Study (1987), the update to Garden State Parkway Mainline Capacity Projection (1995), and the Needs and Feasibility Assessment of Mainline Parkway Widening, Interchanges 30-80 report (1996).

All analysis performed, based on projected development and traffic increase, indicate that the GSP needs to increase its capacities at least one lane in each direction. The most recent study, with its results reflected in Table 3-13, found that the proposed widening would provide the capacity needed for the planning horizon (2025) for the entire length of the project except for the Interchange 74 to 80, Interchange 48 to 50, AC Service Area to Interchange 44 and Interchange 37 to 58 segments.

The study indicates that a future lane is needed in each direction between Interchange 74 and 80 and that an equivalent capacity need will exist north of Interchange 80. Due to the extent of development north of Interchange 80, the Authority does not consider widening beyond three lanes in each direction to be feasible; therefore, with no widening north of Interchange 80 the Authority is not considering widening to four lanes south of Interchange 80 within the planning horizon.

### 3.10 DEMOGRAPHIC ANALYSIS

#### Affected Environment

The proposed project site falls within the counties of Ocean, Burlington, and Atlantic. According to the 1990 Census, Ocean County had a 1990 population of 433,203 persons, an increase of 87,165 persons or 25 percent since the 1980 Census. The 2000 Census determined that the population increased another 87,713 persons (17.9% increase) to a total of 510,916. Atlantic County population increased from 224,327 to 257,552, in the 10 years between 1990 and 2000.

**Table 3-13**  
**Census Figures within the Project Area**

<u>County</u>	<u>Municipality</u>	<u>1980 Census</u>	<u>1990 Census</u>	<u>1980/ 1990 Change</u>	<u>2000 Census</u>	<u>1990/ 2000 Change</u>
Atlantic		194119	224327	15.6%	257552	12.6%
	Egg Harbor Twp.	19381	24536	26.6%	30726	25.2%
	Galloway Twp.	12176	23330	91.6%	31209	33.8%
	Port Republic	837	992	18.5%	1037	4.3%
	Somers Point	10330	11216	8.6%	11614	3.5%
Burlington		362542	395066	9.0%	423394	7.2%
	Bass River Twp.	1344	1580	17.5%	1510	4.4%*
Ocean		346038	433203	25.2%	510916	17.9%
	Barnegat Twp.	8702	12235	40.6%	15270	24.8%
	Beachwood Boro	7687	9324	21.3%	10375	11.3%
	Berkeley Twp	23151	37319	61.2%	39991	7.2%
	Eagleswood Twp.	1009	1476	46.3%	1441	2.4%*
	Lacey Twp.	14161	22141	56.3%	25346	14.5%
	Little Egg Harbor Twp.	8483	13333	57.2%	15945	19.6%
	Ocean Twp.	3731	5416	45.2%	6450	19.1%
	South Toms River Boro	3954	3869	2.2%*	3634	6.1%*
	Stafford Twp.	10385	13325	28.3%	22532	69.1%

\* Denotes population decrease

Source: The New Jersey Municipal Data Book: 1998 Edition, information publications, Palo Alto, CA, 1998.  
2000 Census Data  
NJ Redevelopment & Development Plan  
Regional County and City Planning Departments

### Proposed Impacts and Mitigation

This project is not expected change the demographic profile or promote additional increase of population in the proposed project area. It will have positive demographic impacts by improving emergency access and relieving traffic congestion throughout the project corridor.



### 3.11 CULTURAL RESOURCES

#### Affected Environment

This section identifies the cultural resources present in the project corridor. First, there is a brief discussion of the specific legal and regulatory requirements for the identification of such resources in planning for a major transportation improvement project. This section is followed by an outline of the methodology employed to inventory cultural resources, the overview of the historic context of corridor development, and a description of the resources present therein. The term “cultural resources” used here includes buildings, sites, objects, structures, districts and archaeological sites.

#### Legal and Regulatory Requirements

Cultural resources are protected under Federal law through Section 106 of the National Historic Preservation Act of 1966, as amended; Section 101(b)(4) of the National Environmental Policy Act of 1969; the Archaeological and Historic Preservation Act of 1974; Section 4(f) of the Department of Transportation Act, as amended in 1987; Executive Orders 11593 and 12372; 23 CFR 771, as amended, October 30, 1980; 36 CFR 66; the guidelines developed by the Advisory Council on Historic Preservation (ACHP) published November 26, 1980; and the amended procedures for the Protection of Historic and Cultural Properties as set forth in 36 CFR 800. Applicable State of New Jersey legislation governing the protection of these resources includes the New Jersey Register of Historic Places Act (Laws of 1970, Chapter 268) and Executive Order 215.

The regulations developed under Section 106 of the National Historic Preservation Act require that, prior to approval of Federal funds, licensing, permits, or the use of Federal lands, agencies must consider a project's impacts on any district, site, building, structure, or object that is included on, or is eligible for inclusion on the National Register of Historic Places (National Register), and give the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on such an undertaking. A project is considered to have an adverse effect on such sensitive resources if it changes the quality of cultural characteristics (i.e., “character defining features”) that render them eligible for listing on the National Register. Section 4(f) of the Department of Transportation Act allows for the actual use or constructive use of an historic property only if there is not another feasible or prudent alternative and all possible planning has been undertaken to minimize harm to the property.

Historic properties of national, state, and local significance may be nominated to the National Register following evaluation in accordance with an established set of criteria for determining the significance of potential cultural resources. These criteria, as set forth in 36 CFR 60.4, are used in evaluating the eligibility of such properties for listing in the National Register:

*“The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and;*

*(1) That are associated with events that have made a significant contribution to the broad patterns of our history; or*

- (2) *That are associated with the lives of persons significant in our past; or*
- (3) *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
- (4) *That has yielded, or may be likely to yield, information important in prehistory or history.”*

Listing in the New Jersey Register of Historic Places requires approval of the New Jersey Historic Preservation Office (NJHPO) and the State Review Board. Certified local governments also approve nominations that fall within their jurisdiction. Listing in the National Register requires approval of both the NJHPO and the Secretary of the Interior. The NJHPO, acting on behalf of the ACHP, is responsible for all project reviews under Section 106 of the National Historic Preservation Act and other relevant Federal legislation.

Consistent with the NHPA, the Coastal Area Facilities Review Act (CAFRA) requires surveys and reports to identify and evaluate cultural resources that are potentially eligible for the New Jersey and National Registers. The surveys and reports are to adhere to the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the NJHPO's professional reporting and survey guidelines. The ultimate CAFRA permit approval will be made by the NJDEP Land Use Regulation Program based on information received in public comment or provided by the NJHPO.

The Pinelands Comprehensive Management Plan requires an applicant to determine if any significant historic or prehistoric resources are present on a development site. When the required survey discloses the presence of important cultural resources, a "Certificate of Appropriateness" must be issued by the NJPC before the development can proceed.

## Methodology

The task of identifying cultural resources within the project area began with a review of the National Register, existing surveys, case reports, environmental impact statements and other documents available at the NJHPO, the Alexander Library at Rutgers University, the Geology Library at Princeton University and the Atlantic County Historical Society. This was followed by verification in the field and research in local archives. All known resources within the Area of Potential Effect were identified. The assessment also identified resources that may, upon further research, be considered eligible for National Register listing, and delineated zones where presently unknown archaeological resources may yet be encountered.

The identified resources and potentially sensitive zones are further described in (Cultural Resources Investigation) Technical Report 18 provided to the NJHPO and the NJPC, which is available in the project files. The current findings are preliminary pending the completion of archaeological field testing for the identification and assessment of potential sites.

## Overview

Due largely to the effects of time and changes in the natural environment, prehistoric archaeological resources are often ephemeral and difficult to locate. The Outer Coastal Plain (project area) was

inhabited during the Paleo-Indian period (10000 – 6000 B.C.) probably along riverine environments, particularly in areas overlooking river valleys. In addition, there is considerable evidence of habitation on submerged portions of the Outer Coastal Plain.

At the beginning of the Archaic period (6000 – 1000 B.C.) populations likely consisted of small mobile hunting and gathering bands that seasonally shifted their camps to exploit a wide variety of game and natural resources. Sites are generally small and located in floodplains of rivers, streams and marshlands. However, there is abundant evidence for the expanded use of interior and upland locations during the Archaic period. Toward the end of the Archaic period, some sites are quite large and show repeated use. The number of sites attributed to this period is interpreted to represent a significant increase in the population.

The Woodland period (1000 B.C. to A.D. 1600) includes the introduction of ceramic pot manufacturing and evidence of horticulture. The population continued to expand, and large groups coalesced for at least portions of the year. Long distance trade and the exchange of goods and raw materials reached a zenith in the first millenium A.D. Toward the end of the Woodland period, before the arrival of the Europeans, the people in the project area lived in small family groups, dispersed across the Outer Coastal Plain. These people are included in the group designated as the Unami Delaware (Lenape) and their ancestors.

The earliest European settlers were quick to exploit the natural resources of the area. The first commercial activities in the project area were whaling, fishing and shipbuilding. Families involved in these industries settled along the bay shores and rivers. Centers of shipbuilding were located in Waretown, Toms River, Barnegat and Tuckerton. The market for locally harvested fish and shellfish extended to New York and Philadelphia. Lumbering was another major industry of the area. The lumbering industry capitalized on the area's hardwood forests and vast stands of cedar. The rivers were used to transport lumber to the mills and shipbuilding centers and helped open the Pine Barrens to early settlement.

Ocean County has been settled since colonial times; however, its presence as a political entity is relatively recent. Ocean County was created from lands divided from Monmouth County on February 15, 1850. Ocean County's political subdivisions at that time consisted of Jackson, Plumsted, Stafford, Union, Dover and Brick Townships.

Burlington County was originally settled by Quakers in 1677 and incorporated in 1681. Burlington City served as the county seat until 1796, when the title was transferred to Mount Holly. Prior to that, Burlington City was the capital of West Jersey, formed before the creation of the state of New Jersey. Unlike the whaling and shipbuilding history of coastal Ocean County, Burlington County, generally encompassing south/central New Jersey's interior, was settled for its fertile soils. Agriculture was the mainstay of the county's economy through the 1950's, when the Campbell's Soup Company began to grow tomatoes here. Burlington County is also the second largest producer of cranberries in the nation, with national firm Ocean Spray Company maintaining numerous cranberry bogs within the county.

Atlantic County began as a settlement in Somers Point in 1693 by John Somers, a member of the Quaker community. It officially became a county in February of 1837, formed from a portion of

Gloucester County. Many of the earliest settlers in Atlantic County were whalers. Shipbuilding became a major industry, with large tracts of pine and oak forests readily available for use.

## National Register Sites

### Port Republic Historic District

The Village of Port Republic, located on the Nacote Creek near the mouth of the Mullica River, contains 114 contributing structures and 62 non-contributing structures. The Village was listed on the National Register on May 16, 1991 and is located within the nineteenth-century town depicted in the 1872 Beers atlas. The district is listed under National Register Criteria A and C for its importance as a harbor and shipbuilding center in Atlantic County and as an example of a typical nineteenth-century village. Port Republic also has potentially undisturbed archaeological resources, therefore it is also significant under Criterion D.

## NJHPO Opinions of Eligibility

### West Jersey and Atlantic Railroad

Crossing under the Garden State Parkway at Route 40/322 (Black Horse Pike) in Pleasantville, Atlantic County, the portion of the West Jersey and Atlantic Railroad between Mays Landing, Hamilton Township and Pleasantville City, Atlantic County, is eligible for listing on the National Register of Historic Places as a linear historic district under National Register Criteria A, C and D, as per a NJHPO Opinion of Eligibility dated August 28, 1996. This rail line is significant for its importance in opening the region to development, as an example of its typical railroad engineering and architecture in the late nineteenth century, and for its potential as a historic archaeological site.

### U.S. Route 9 Bridge Over Bass River

The U.S. Route 9 Bridge over Bass River (Structure No. 0302-150) was given a NJHPO Opinion of Eligibility on October 29, 1992. According to the 1995 New Jersey Historic Bridge Survey, this 1924 bridge, "is not only a well preserved example of a patented Strauss articulated underneath counterweight moveable span bridge, it is also possibly the only chain-driven, gasoline powered moveable bridge in the state." The bridge is a single leaf bascule type.

### Garden State Parkway

The GSP was given a NJHPO Opinion of Eligibility on September 21, 2001. The GSP is a 173-mile limited-access parkway extending from the New York State line to Cape May. This linear historic corridor has a right-of-way width that varies between 150 feet and 1,200 feet. Contributing elements (character defining features) within the project area include the following: right-of-way, 20 overpass bridges, 41 mainline bridges (including 2 major bridges) and 24 mainline culverts, 2 service areas (Forked River and Atlantic City), 2 toll plazas (Barnegat and New Gretna), the Bass River State Police Barracks, and 2 maintenance areas (White Horse Maintenance Yard and Ocean Maintenance Yard).

The GSP is eligible under Criterion A for its role in stimulating suburban and commercial development in the New Jersey shore region, and Criterion C in the areas of architecture and landscape architecture as an intact example of the mid-twentieth century merging of the limited-access scenic pleasure drive and the high-speed super highway - aesthetic route and engineered route.

#### Mullica River/Chestnut Neck Archaeological Historic District

The Mullica River/Chestnut Neck Archaeological District consists of archaeological deposits associated with the original settlement of Chestnut Neck and the sunken Revolutionary War period vessels in the Mullica River. The district, which was added to the New Jersey Register of Historic Places on October 1, 1976, consists of riverine areas including the Mullica River, Nacote Creek and Batsto River in Galloway Township (Atlantic County) and Bass River Township (Burlington County).

#### Camden and Atlantic Railroad

Crossing under the Parkway just south of Interchange 40 (White Horse Pike) in Pomona, Atlantic County, the Camden and Atlantic Railroad is a portion of this potentially eligible historic railroad corridor between Camden and Atlantic City. This rail line is now owned by NJ TRANSIT and operates as the Atlantic City Line.

#### Forked River and Tuckerton Railroad

The Forked River and Tuckerton Railroad at one time crossed the current GSP right-of-way in the vicinity of Milepost 69.7. This corridor has not been evaluated for eligibility, and there are no above ground elements of the railroad remaining with the GSP right-of-way.

#### Camden and Burlington County Railroad

The Camden and Burlington County Railroad at one time crossed the current GSP right-of-way in the vicinity of Milepost 80. This corridor has not been evaluated for eligibility, and there are no above ground elements of the railroad remaining within the GSP right-of-way.

### Coordination with Agencies

The assessment involved coordination with agencies having jurisdiction over, or an interest in, the cultural resources in the project corridor. The assessment process involved contacting relevant agencies, conducting numerous discussions during the inventory and identification of the resources, and the review of the preliminary assessment findings with the NJHPO.

The NJHPO was asked to review the assessment to ensure that all relevant National Register listed and eligible sites and districts were appropriately identified and considered, and that the potential effects of the widening were properly assessed. The review entailed a presentation of the project, including a description of the Area of Potential Effect, the specific cultural resources, and the potential effects of the widening on the cultural resources identified. The following sections present the results of the coordination and consultation process conducted for the project.

## Proposed Impacts and Mitigation

### Preliminary Determinations of Effects

The Section 106 process was followed to identify cultural resources in the project area and to determine the potential effect of proposed actions defined in the widening plan. The process consisted of the following steps:

- Inventory and identification of the cultural resources (properties and districts) within the relevant impact area of “Area of Potential Effect,”
- Assessment of the potential effects of the widening on identified cultural resources located in the “Area of Potential Effect”; and
- Consultation with, and concurrence from, the appropriate officials that have jurisdiction with respect to the findings of the effects assessment.

The ACHP has developed criteria to determine whether a proposed project would have adverse effects on a property listed, or eligible for listing, on the National Register. The ACHP guidelines discuss the criteria of adverse effect in 36 CFR 800.5(a)(1), as follows:

*“An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.”*

An adverse effect is further defined in 36 CFR 800.5(a)(2), as follows:

*“Adverse effects on historic properties include, but are not limited to:*

- (1) Physical destruction of or damage to all or part of the property;*
- (2) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary (of the Interior)’s standards for the treatment of historic properties and applicable guidelines;*
- (3) Removal of the property from its historic location;*
- (4) Change in the character of the property’s use of or physical features within the property’s setting that contribute to its historic significance;*
- (5) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property’s historic features;*
- (6) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and*

- (7) *Transfer, lease or sale of the property out of Federal ownership or control without adequate or legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance."*

Effects on historic resources can be direct or indirect. Right-of-way acquisition, noise and vibration impacts, and visual impacts are the primary considerations in making effect determinations. Changes in the immediate environment of a resource, such as those involving access and visibility, were also considered. In addition, construction impacts, such as effects from noise, vibration, and deteriorated air quality, were also analyzed. All effect findings presented below were concurred with as per a letter from the NJHPO dated October 12, 2001 (HPO-G2001-152).

### Adverse Effects on Cultural Resources

NJHPO has determined that the widening project will have an adverse effect in the following resources:

#### U.S. Route 9 Bridge Over Bass River

The widening project will have an adverse effect on the U.S. Route 9 Bridge over Bass River. However, it is anticipated that the New Jersey Department of Transportation will complete their planned bridge replacement project before the Garden State Parkway coordinates its new bridge in this vicinity. The NJDOT has completed the Section 106 consultation on the U.S. Route 9 Bridge replacement project which resulted in a fully executed Memorandum of Agreement for mitigation of adverse effects to this bridge. The completion of this mitigation will negate the adverse effect finding relative to the impacts of the widening of the GSP.

#### Garden State Parkway

The widening project will have an adverse effect on the historic corridor and many of its contributing elements. Adverse impacts include: widening into the character defining median, partial demolition of mainline bridges and culverts, complete demolition of three mainline bridges and complete demolition of two overhead bridges.

The New Jersey Turnpike Authority is continuing the Section 106 consultation process, and mitigation of the adverse impacts on this resource will be included in the resulting executed Memorandum of Agreement.

### No Adverse Effects on Cultural Resources

The NJHPO has determined the proposed widening will have no adverse effect on the following cultural resources per a letter dated October 12, 2001 (HPO-G2001-152).

#### West Jersey and Atlantic Railroad

The widening will have no adverse effect on the West Jersey and Atlantic Railroad District. The widening will span the railroad corridor.

#### Camden and Atlantic Railroad

The widening will have no adverse effect on the Camden and Atlantic Railroad District. The widening will span the railroad corridor.

#### Port Republic Historic District

The widening will not result in any physical or visual changes to the district. The widening and increase in traffic will result in additional noise, however, the audible effect will not be adverse to the district as there is already substantial noise generated from the Parkway.

#### Mullica River/Chestnut Neck Archaeological Historic District

The proposed project will have no adverse effect on this district. One known contributing element to this historic district is several hundred feet distant from the margin of the APE. Within the APE, previous disturbance of this river bed and river banks indicate low potential for surviving contributing elements.

#### No Effect on Cultural Resources

In a letter dated January 16, 2002 (HPO-A2002-105), the NJHPO has determined there is no effect on the following potentially eligible resources because there is no evidence of any contributing elements remaining within, or in the vicinity of, the Parkway right-of-way:

- Forked River and Tuckerton Railroad
- Camden and Burlington County Railroad



### 3.12 HAZARDOUS ENVIRONMENTAL CONDITIONS

#### Affected Environment

There are no known hazardous materials or contaminants located within the project site. A search of available environmental records was conducted in order to identify potential environmental conditions that may affect or be affected by the proposed project. The State and Federal databases researched include:

- National Priority List (NPL)
- Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)
- Resource Conservation and Recovery Information System (RCRIS)
- Emergency Response Notification System (ERNS)
- Corrective Action Report (CORRACTS)
- Superfund Consent Decrees (CONSENT)
- Facility Index System (FINDS)
- Hazardous Materials Information Reporting System (HMIRS)
- Material Licensing Tracking System (MLTS)
- Federal Superfund Liens (NPL Liens)
- PCB Activity Database System (PADS)
- RCRA Administrative Action Tracking System (RAATS)
- Record Of Decision (ROD)
- Toxic Chemical Release Inventory System (TRIS)
- Toxic Substances Control Act (TSCA)
- Leaking Underground Storage Tank (LUST)
- State Hazardous Waste Sites (SHWS)
- Solid Waste Facilities/Landfill Sites Directory (LF)
- Registered Underground Storage Tanks (UST)

The detailed listing and description of sites can be found in the Hazardous Materials Report, prepared under separate cover

#### Proposed Impacts and Mitigation

Although many of the databases search provided a listing of sites within the typical American Society for Testing and Materials (ASTM) radius of ¼ to 1 mile, no sites were included within GSP right-of-way that would affect the proposed widening project.

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## 4.0 OTHER ENVIRONMENTAL CONSIDERATIONS

### 4.1 NEW JERSEY PINELANDS

This compliance statement addresses how the proposed widening of the GSP between Interchange 30 and 80 complies with the criteria outlined in the Minimum Standards for Land Uses and Intensities (N.J.A.C. 7:50 - Subchapter 5) and Management Programs and Minimum Standards (N.J.A.C. 7:50 - Subchapter 6).

#### 4.1.1 Minimum Standards for Land Uses and Intensities

##### Preservation Area District (N.J.A.C. 7:50-5.22)

The proposed project is located partially within the Preservation Area District in Ocean and Burlington Counties. There are no set standards for roadway projects within this area.

##### Forest Areas (N.J.A.C. 7:50-5.23)

The proposed project is located partially within the Forest Areas within Ocean and Burlington Counties. There are no set standards for roadway projects within this area.

##### Rural Development Areas (N.J.A.C. 7:50-5.26)

The proposed project is located partially within the Rural Development Areas in Atlantic, Burlington and Ocean counties. There are no set standards for roadway projects within this area.

##### Pinelands Villages and Towns (N.J.A.C. 7:50-5.27)

The project is located partially within the Pinelands Villages Area in Burlington County. There are no set standards for roadway projects.

#### 4.1.2 Management Programs (N.J.A.C. 7:50 - Subchapter 6)

##### Wetlands

##### Significant adverse impact (N.J.A.C. 7:50-6.7)

The proposed preferred alternative will cross or encroach upon numerous freshwater, brackish, and saltwater wetlands. The project has been designed to minimize surface water runoff, erosion, wetland habitat loss and a reduction in diversity.

Given the nature of the proposed roadway-widening project, a total of 7.707 acres (See Table 3.2) will be impacted by construction activities. In view of the fact that the length of the project is 100 miles long, this area of disturbance equates to less than 0.07 acres of wetland disturbance per mile. Based on

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this information, it appears that the wetland impacts are negligible when compared to the total area (2,600 acres) of the proposed project. Out of the total project acreage, the wetlands represent .002 percent of the entire project acreage.

#### Linear improvements (N.J.A.C. 7:50-6.13)

The proposed preferred alternative will have an overall minimal impact on wetland areas, as mentioned above and will provide safe roadway geometry to satisfy the project's objectives. Given the nature of this 100-mile project, all proposed construction will take place within the New Jersey Turnpike Authority's right-of-way. Based on the New Jersey Pineland's Commission Regulations, as well as the New Jersey Department of Environmental Protections Regulations, this project represents a linear improvement.

#### Wetland transition areas (N.J.A.C. 7:50-6.14)

The wetland areas within the project corridor have associated transition areas (buffers) ranging from 50 to 300 feet. The proposed preferred alternative minimizes buffer encroachment.

### **Vegetation**

#### Clearing and soil disturbance (N.J.A.C. 7:50-6.23)

Proposed soil removal is necessary to accommodate the proposed project. Through the use of an approved sediment and soil erosion control program, the existing soil will be preserved to the maximum extent possible.

#### Revegetation and landscaping plans (N.J.A.C. 7:50-6.24)

The proposed widening will require the clearing of 155.58 acres of vegetation. Reforestation will not take place due to the proposed fire management program within the GSP.

#### Native shrubs and trees (N.J.A.C. 7:50-6.25)

As stated above, reforestation will not take place due to the proposed fire management program within the GSP.

#### Development prohibited in the vicinity of threatened endangered plants (N.J.A.C. 7:50-6.27)

Threatened or endangered plant species were discovered in the project area. For further information regarding these species, consult the *Threatened and Endangered Species Report* under separate cover from Amy S. Greene Environmental. The project is designed to minimize any adverse impacts upon any threatened or endangered plant or animal communities in the Pinelands listed under N.J.A.C. 7:50-6.27.

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## Fish and Wildlife

### Protection of threatened or endangered wildlife required (N.J.A.C. 7:50-6.33)

Threatened and endangered plant species were investigated in the project area (*Threatened and Endangered Species Report*, Amy S. Greene Environmental). The bog asphodel (*Narthecium americanum*) and the curly grass fern were both found in the borrow pit bog located outside the proposed construction area. Two other species, the pine barren bellwort and the pine barren reedgrass were not found in the search areas.

### Protection of wildlife habitat (N.J.A.C. 7:50-6.34)

All aspects of the project will attempt to minimize or avoid any disturbance of fish and wildlife habitats that are essential to significant populations of fish and wildlife in the Pinelands.

## Forestry

Not applicable to this project. No commercial forestry projects are planned for this project.

## Agriculture

Not applicable to this project. There are no agricultural production areas found within the project corridor.

## Resource Extraction

Not applicable to this project. No sand, gravel, clay, ilmenite, or other natural resources will be removed for commercial use during this project.

## Waste Management

There are no waste landfills associated with this project.

## Water Quality

### Protect and preserve water quality (N.J.A.C. 7:50-6.83)

Additional impervious surface will be created by the proposed project. Post development runoff rates will be limited to predevelopment rates through the use of a system of infiltration basins, perforated pipes, special structures and grassed swales, in accordance with the *Standards for Soil Erosion and Sediment Control in New Jersey*. Stormwater runoff during construction will be regulated in accordance with State approved standards deemed necessary by the New Jersey Pinelands Commission. A Stormwater Management Report (Technical Memorandum # 8) has been prepared for the project and has been submitted under separate cover. A complete stream encroachment application has been submitted to the NJDEP and NJPC for review and approval. Based on recent

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meetings with the regulatory agencies, additional swales will be added to the plans to meet the specified recharge requirements.

Point and non-point source discharges; surface water runoff (N.J.A.C. 7:50-6.84(a) 6)

Additional impervious surface generated by the proposed project will increase stormwater runoff. Under separate cover, a Stormwater Management Report (Technical Memorandum # 8) has been prepared to those standards set under N.J.A.C. 7:50-6.84(a) 6.

Individual wastewater treatment facility and petroleum tank maintenance (N.J.A.C. 7:50-6.85)

Not applicable to this project.

Prohibited chemicals and materials (N.J.A.C. 7:50-6.87)

Not applicable to this project.

## **Air Quality**

General standards (N.J.A.C. 7:50-6.93)

Increased particulate matter and ozone will be generated from construction vehicles and welding equipment. The proposed project is not expected to violate the Clean Air Act Amendments of 1990 (CAAA) or State laws that regulate air quality. An air quality simulation model pursuant to N.J.A.C. 7:27-18.3 will not be required.

## **Scenic**

Scenic corridors (N.J.A.C. 7:50-6.103)

Portions of the project area cross through various scenic corridors. These areas include the proposed project areas in the Preservation Area District, the Rural Development and Forest Area District.

Requirements for special scenic corridors (N.J.A.C. 7:50-6.105)

The project area intersects several of the special scenic corridors listed under N.J.A.C. 7:50-6.105. All project areas within 1,000 feet of the centerline of these corridors will be designed to avoid all visual impacts when viewed from the river. No change in existing visual impact will occur.

Signs (N.J.A.C. 7:50-6.106)

The proposed project will generate the need to move, replace, and install new road signs. All signs placed within the Preservation Area Districts in all three counties shall follow the provisions listed under N.J.A.C. 7:50-6.106 through 7:50-6.109.

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#### Location of utilities (N.J.A.C. 7:50-6.111)

To the maximum extent possible existing aerial and underground utilities will be maintained along their current alignments. However, where this is not possible and utility relocations are required, the location of the relocated facilities will be maintained on a similar alignment within the proposed roadway section. For example, aerial facilities on overpasses will be relocated to maintain their current offset location from the overpass pavement and fiber optic utilities, currently located in the grass berm areas immediately adjacent to the outside shoulders, may be shifted outward to a similar location where mainline widening occurs to the outside. All utility relocation work will be contained within the limits of the project.

No new utility installations are proposed to be constructed within the project disturbance limits.

### **Fire Management**

Not applicable to this project. No residential dwellings or roofed structures will be created during for this project.

### **Recreation**

Not applicable to this project. There are no proposed recreational areas within the project corridor.

### **Historic, Archaeological, and Cultural Preservation**

Section 3.11 provides a comprehensive analysis of the Historic and Archaeological Resources associated with the project. Additionally, the NJTA's sub-consultant – Gannett Fleming is in the process of finalizing a comprehensive alternatives analysis for SHPO. This document will be submitted to the regulatory agencies under separate cover. This alternatives analysis was prepared as a result of the preliminary analysis from the NJDEP.

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## 4.2 NEW JERSEY COASTAL ZONE MANAGEMENT RULES

### 4.2.1 Compliance Summary

The New Jersey Turnpike Authority intends to comply with all applicable policies set forth in the Rules on Coastal Zone Management found at N.J.A.C. 7:7E-1 et seq., as amended through February 7, 2002.

The project site is located within 14 municipalities. Within Ocean County there is Berkley, Lacey, Ocean, Stafford, Eagleswood, Little Egg Harbor Townships and South Toms River Borough. Only Bass River Township in Burlington County is affected by the project. In Atlantic County, the cities of Port Republic and Somers Point as well as Galloway and Egg Harbor Townships will be within the project area. All are within the Coastal Zone and fall under the Coastal Areas Facilities Review Act (CAFRA). Where applicable, the policies and compliance with these policies are listed below:

### 4.2.2 Special Areas (N.J.A.C. 7:7E-Subchapter 3)

The following Special Areas have been identified in the project area and are addressed below. It is important to note that the Mullica River crossing will be addressed for the special areas that may be impacted.

#### Shellfish Habitat (N.J.A.C. 7:7E-3.2)

Based upon a NJDEP 1996 Benthic Macroinvertebrates Data report, only one of fifteen sampling points taken in and near the production corridor contained any commercially valuable shellfish. Thirteen Eastern Oysters (*Crassostrea virginica*) were sampled in an area approximately 1000 feet downstream on the Route 9/GSP crossing. The proposed preferred alternative will have no detrimental effect upon shellfish habitats within or downstream of the project corridor.

According to NJDEP Digital GIS Data, for NJ coastal waters, there is shellfish harvesting within the Mullica River. According to regulations of shellfish harvest waters are classified in one of five categories: Prohibited, Special Restricted, Seasonal (Nov - Apr), Seasonal (Jan - Apr), and Approved. Classification of the waters is based on the National Shellfish Sanitation Program. Mullica River is classified as Special Restricted for shellfish harvesting. The proposed project will not have any adverse impact on shellfish that may potentially occur in the project area. Therefore, proposed project is not anticipated to have an adverse impact on shellfish habitat.

Additionally we have met the NJDEP Bureau of Shellfisheries and have developed an oyster bed monitoring plan to assure that the native oyster beds within the area of the Mullica River are not impacted during construction. The monitoring plan consists of the following:

#### **Task I: Baseline and Construction Sampling of Oyster Beds and Water Quality**

Based our meeting on January 10, 2007, the NJDEP Bureau of Shellfisheries will conduct a sample dredge within the area of the oyster beds to determine the condition of the existing beds prior to the commencement of construction. The New Jersey Turnpike Authority ("NJTA") will fund this operation. The purpose of this sampling is to determine the overall condition of the oyster beds as a bench mark prior to the construction of the new Bridge. Additionally, a consultant to be selected by

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the NJTA will sample water quality at two locations (10 feet upstream and downstream of the existing bridge) for water quality criteria including dissolved oxygen, pH and clarity. This information will be utilized as a benchmark during construction to determine the effect, if any, that construction activities may have on water quality. The water quality data will be used as a benchmark for daily comparisons during construction. The water quality information will be summarized daily and forwarded to the Bureau weekly for analysis. If the water quality criteria significantly deviates from the benchmark data, we will notify the Bureau immediately. This task will be coordinated with the Bureau one month prior to the commencement of construction. Additionally, as a portion of this task, the Bureau will be invited to the pre-construction meeting to assure that the monitoring program will be strictly adhered to and all construction activities will be closely monitored.

## **Task II: Post Construction Monitoring and Evaluation**

Once the construction is complete, a final post-construction dredge sample will be obtained by the Bureau. The NJTA will notify the Bureau at least one month prior to the completion of construction. The NJTA will also fund this effort. The information obtained from the Baseline sample dredge will be used to create a baseline for comparison with the Post-Construction samples.

## **Task III: Construction Techniques Designed to Minimize Adverse Water Quality Conditions**

In an effort to eliminate siltation of the oyster beds and increased turbidity in the water column, the installation of the Bridge Piers will be constructed using reverse circulation Drilling. This method will allow the contractor to remove the drill cuttings and channel the drilling mud and groundwater into settling tanks. Three settling tanks in series will be used to collect and sort out the drill cuttings and fluids. The cuttings will be pumped under pressure from the drill hole to the settling basins by means of an 8-inch diameter pipeline. Excess fluids can be recycled back to the drill hole.

The contractor will be required to follow the below referenced construction sequence and procedures. The following will be included in the bridge specifications for construction:

1. The contractor will install permanent steel casing through the water and a portion of the soil overburden. Sufficient casing penetration and head of drilling mud inside the casing will be kept to maintain sufficient stability at the base of the excavation. The casing will eliminate the potential for soil caving into the hole. Jacking the casing into the soil will minimize the groundwater inflow into the hole.
2. Auger a drilled shaft while mixing the soil with bentonite to loosen the soil.
3. Remove the soil cutting / bentonite mix to a water tight hold tank(s) while replacing the soils with a bentonite slurry. No. de-watering of the hole will be required.
4. Drill the minimum drilled shaft tip elevation and clean the hole.
5. Pour "tremie" concrete for the drilled shaft construction while pumping out the bentonite slurry into a watertight holding tank.
6. Prior to beginning work, the drilling barge floor surrounding the drilled shall be covered with a heavy duty plastic material to prevent incidental cuttings and water from contaminating the river.



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7. The holding tanks will be located adjacent to the river / roadway and can be connected via watertight pipelines.
  8. Excess cuttings will be left in the tank to settle then be removed for disposal off site.

During construction, water quality will be monitored daily by a field representative assigned to the bridge construction project. As stated above, the water quality data will be compared to the benchmark samples taken prior to construction.

If sedimentation becomes an issue, the contractor will revert to drilling during the incoming tide to prevent downstream siltation of the oyster beds. Additionally, the construction plans include the location of the oyster beds and leasing grounds. The contractor will strictly prohibit the placement and/or anchoring of the drilling barge within 50 feet of the oyster beds and leasing grounds.

Based on the method of proposed construction, we anticipate that the oyster beds will not sustain any adverse impacts or sedimentation.

The NJTA, in conjunction with the selected contractor, proposes to strictly adhere to this monitoring plan to assure that the native oyster beds remain in tact and undamaged. The NJTA will work directly with the Bureau of Shellfisheries to enforce this monitoring program.

### **Surf Clam Areas (N.J.A.C. 7:7E-3.3)**

According to the Shellfish Distribution Maps in the *New Jersey Anadromous Fish Inventory, NJDEP Miscellaneous Report No.41* (1978), the Mullica River is mapped as containing an occurrence of hard clam density and distributions of oyster beds. The small amount of temporary disturbance to Mullica River will not adversely impact surf clam habitats in the area.

### **Prime Fishing Areas (N.J.A.C. 7:7E-3.4)**

The shoreline of Mullica River provides areas for recreational and commercial fishing. A saltwater marsh is located on both sides of the channel bank in the area of the proposed project, thus there are no direct access points to the waterfront via the land for fishing activities. There are no coastal jetties, groins, public fishing piers, docks or artificial reefs near the project site. Therefore, the proposed project will not have impacts to prime fishing areas. The proposed project will not alter the bathymetry that will reduce the high fishery productivity to the area. No mining or disposal of hazardous waste is proposed at the site.

As a portion of the proposed project, the NJTA is proposing the creation of three public access areas to the waterfront. The proposed public access locations will provide public fishing areas for local residents. The access locations will be within areas that are designated a prime fishing areas. The public access locations will be located within the vicinity of the Bass River and Mullica River. The exact locations of the public access areas are currently being negotiated with the NJDEP. Once the final locations are determined, formal design plans and permit applications for the public access facilities will be submitted to the NJDEP and USACOE for review and approval.

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### **Finfish Migratory Pathways (N.J.A.C. 7:7E-3.5)**

According to the *New Jersey Anadromous Fish Inventory*, NJDEP Miscellaneous Report No.41 (1978), the Mullica River supports anadromous fish and/or clupeid spawning habitats. According to the Inventory American Shad (*Alosa sapidissima*) Alewife (*Alosa pseudoharengus*) are documented in the Mullica River. The proposed project will not have adverse impact on Alewife or Shad Runs due to the nature of the project.

### **Submerged Vegetation Habitat (N.J.A.C. 7:7E-3.6)**

Based on our review of available GIS mapping from the NJDEP (submerged aquatic vegetation 1996 – 1999), there does not appear to be any submerged aquatic vegetation within the area of the Bass River, Mullica River and Patcong Creek (see attached map). Additionally, based on our field inspections of these areas, vegetation was not evident during the growing season. Based on our review and analysis, this policy is not applicable to the project.

### **Navigation Channels (N.J.A.C. 7:7E-3.7)**

Several navigation channels, primarily the Mullica River and the Bass River, will be crossed by this project. The Patcong Creek is navigable; however, the U.S. Army Corps of Engineers (USACOE), the NJDEP, and the State of New Jersey do not maintain it. The preferred alternative will utilize bridges to minimize impact upon these areas.

### **Canals (N.J.A.C. 7:7E-3.8)**

Not applicable. All navigation channels crossed by the project are natural surface water channels.

### **Inlets (N.J.A.C. 7:7E-3.9)**

Not applicable. The project area does not cross any barrier islands in which inlets form.

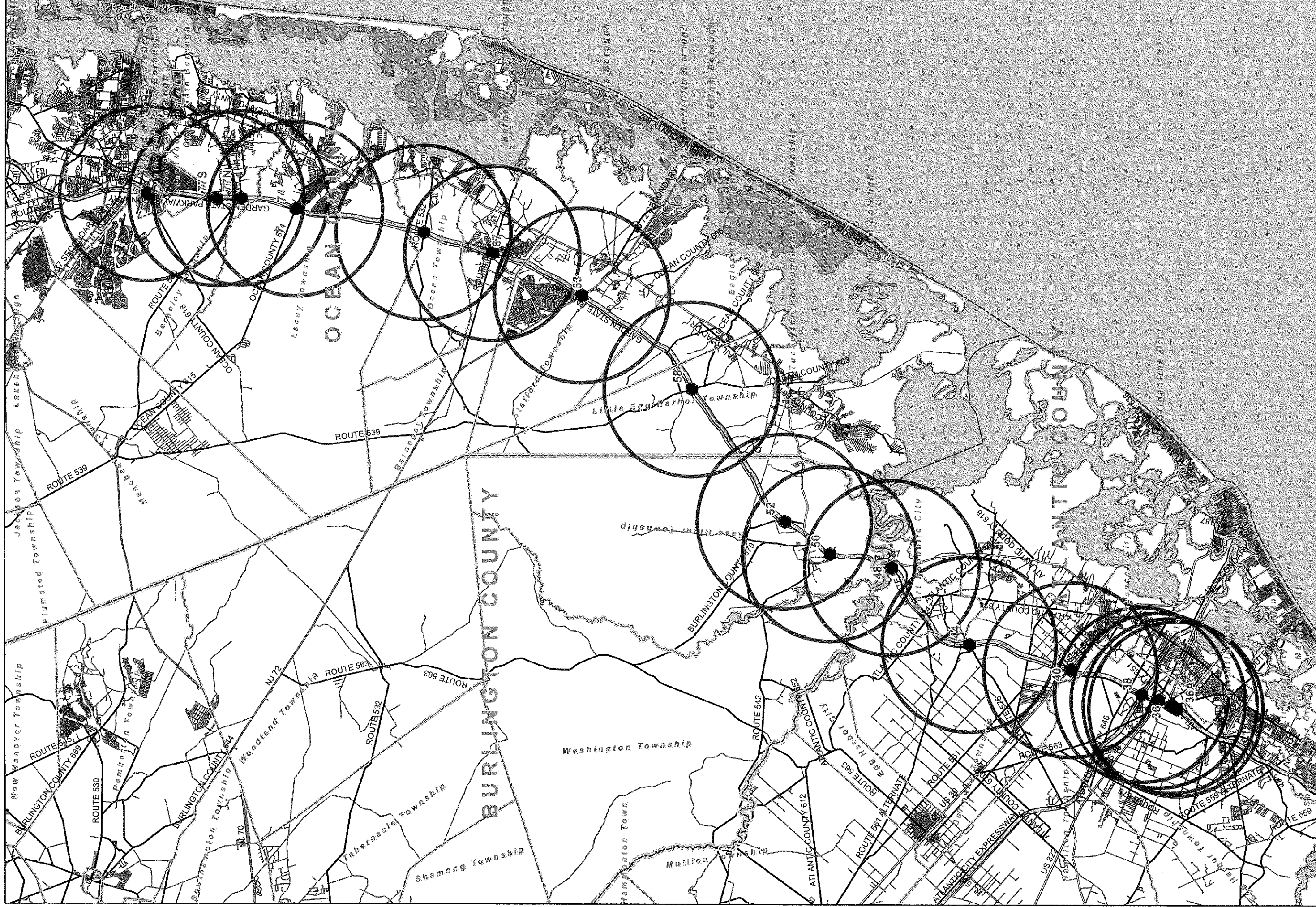
### **Marina Moorings (N.J.A.C. 7:7E-3.10)**

The project will cross several navigable waters with moorings for boats. Bridges will span these waters in order to avoid any disruption of the marina mooring areas. The proposed project will span marina moorings associated with the Bass River. These areas will not be impacted by the proposed widening project. Additionally, the project will not prohibit access to any existing mooring facilities.

Additionally the proposed project will not impact docking or boat maneuvering room and will not impact access to land and navigational channels for five or more vessels.

### **Ports (N.J.A.C. 7:7E-3.11)**

Not applicable. The project area will not cross any shore side marine terminals or transfer facilities.



- Parkway Interchange
- Submerged aquatic vegetation - 1995-1999
- Interchange Buffer (3.2 mile radius)
- County Boundary
- Municipal Boundary

**TM**  
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Middletown, NJ 07748-2792  
Phone: 732-671-6400  
FAX: 732-671-7365  
Prepared by: JNP, October 27, 2006  
Source: NJDEP - CARPA, Municipal & County Boundaries, Environmental Protection Geographic Information System digital data, and other publicly available information.  
File Path: H:\NJTPM01\802\erms\CARPA\_PMA.mxd

**Exhibit C: Pineland Management Areas and Coastal Planning Areas**  
**Garden State Parkway Interchanges**  
**Atlantic, Burlington and Ocean Counties, New Jersey**

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, and other publicly available information. The map is not a legal document and is not State-authorized.

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### **Submerged Infrastructure Routes (N.J.A.C. 7:7E-3.12)**

Any pipes or cables that run on or below a submerged land surface will be relocated during construction or spanned via bridges.

### **Shipwrecks and Artificial Reefs (N.J.A.C. 7:7E-3.13)**

Not applicable. No permanently submerged or abandoned remains of vessels exist within the area of the proposed improvements.

### **Wet Borrow Pits (N.J.A.C. 7:7E-3.14)**

A wet borrow pit is located approximately 300 feet to the north of CR 532 in the northwestern portion of the project area. The preferred alternative will not impact the borrow pit.

### **Intertidal and Subtidal Shallows (N.J.A.C. 7:7E-3.15)**

As a portion of this proposed project, several areas designated as intertidal / subtidal shallows will be affected. The proposed project will disturb a total of .1538 acres associated with the following water bodies:

- |                     |          |
|---------------------|----------|
| ➤ Mill Creek        | MP 30.55 |
| ➤ Patcong Creek     | MP 30.92 |
| ➤ Mullica River     | MP 48.70 |
| ➤ Loveland Thorfare | MP 49.50 |
| ➤ Mathis Creek      | MP 50.00 |
| ➤ Bass River        | MP 50.50 |

Within these areas, impacts have been minimized to the maximum extent practicable through the utilization of measures including reduced side slopes, retaining walls and overall roadway geometry configurations that avoided intertidal / subtidal shallows. The Bass River Bridge and Mullica River Bridge will be replaced due to the age and condition of these structures. With regard to the calculation of the area of intertidal / subtidal shallow disturbance, 6,700 square feet will be disturbed by the project.

As a result of the disturbance, the proposed will include mitigation of the intertidal / subtidal shallows in accordance with the Department's requirements. The mitigation proposal is currently being negotiated with the NJDEP to offset the impacts associated with the proposed project.

### **Dunes (N.J.A.C. 7:7E-3.16)**

Not applicable. There is no wind or wave deposited dunes within the project area.

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### **Overwash Areas (N.J.A.C. 7:7E-3.17)**

Not applicable. No areas landward of a beach or dune that are subject to an accumulation of sediment exist within the project area.

### **Coastal High Hazard Areas (N.J.A.C. 7:7E-3.18)**

Not applicable. There are no high velocity waters as mapped by the Federal Emergency Management Agency (FEMA) within the project area.

### **Erosion Hazard Areas (N.J.A.C. 7:7E-3.19)**

Due to the relatively flat topography of the project site, there is very little erosion or history of erosion. However, several areas of the project will be disturbed through land clearing and grading. Through the use of an approved Soil Erosion and Sediment Control Plan, all disturbed soils will be stabilized during construction.

### **Barrier Island Corridor (N.J.A.C. 7:7E-3.20)**

Not applicable. No barrier islands exist within the project area.

### **Bay Islands (N.J.A.C. 7:7E-3.21)**

Not applicable. No bay islands exist within the project area.

### **Beaches (N.J.A.C. 7:7E-3.22)**

Not applicable. There are no beaches as defined under N.J.A.C. 7:7E-3.22 that exist within the project area.

### **Filled Water's Edge (N.J.A.C. 7:7E-3.23)**

Along the length of the project area are several sections of roadway that have been filled between continuous sections of wetlands. The preferred alternative will attempt to minimize encroachment on the water's edge through the use of bridges where appropriate.

### **Existing Lagoon Edge (N.J.A.C. 7:7E-3.24)**

Not applicable. There are no areas within the project corridor that have been dredged for the purpose of creating waterfront residential lots.

### **Flood Hazard Areas (N.J.A.C. 7:7E-3.25)**

The proposed project will impact areas that are designated as flood hazard areas. T & M Associates has prepared and submitted a Stream Encroachment Application to the Regulatory Agencies for



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review. Associated with the submittal of this application was a comprehensive analysis of current conditions and proposed conditions. This analysis of the fifty-nine (59) Major design points identified within the project limits. All of which are non-tidal (fluvial) watersheds. The major design points are defined as those crossings draining a watershed area of 50-acres or more. The (59) Major design points consist of the following:

- Twenty design points (20) cross a major stream.
- Four (4) are bridges.
- Sixteen (16) are culvert pipes.
- Thirty-nine (39) major tributaries are culvert pipes.

There are seventeen (17) existing Tidal watershed crossings. The seventeen tidal watershed crossings consist of the following:

- Three (3) are bridges.
- Fourteen (14) are culvert pipes.

There are also seventy-five (75) minor culvert crossings under the GSP. Minor culverts crossings are defined, as those pipes draining an area less than 50-acres all are fluvial.

As a portion of this project, it is anticipated that 5,100 yards of fill will be placed within the flood hazard areas. This fill will be placed in accordance with the regulations established by the NJDEP and NJPC.

Lastly, the NJDEP and NJPC have requested additional swales be installed within the northern half of the project. T & M Associates is currently revising the proposed plans and calculations to include the additional swales.

### **Wetlands (N.J.A.C. 7:7E-3.27)**

Freshwater wetlands impact of the project is approximately 4.465 acres. In addition there will be an impact to .105 acres of open water, 0.154 acres of intertidal / subtidal shallows and 2.984 acres of tidal marshes. These wetlands were field delineated pursuant to the New Jersey Pinelands Commission Manual for Identifying and Delineating Pinelands Area Wetlands. The total amount of disturbance that will be impacted as a result of the project will be approximately 7.707 acres. A Freshwater Wetlands Individual Permit Application is being concurrently submitted. As part of the permitting process the Turnpike Authority will be mitigating for these impacts in accordance with the NJDEP's rules and regulations. The exact nature of the mitigation is currently being discussed with the NJDEP. Once the mitigation is agreed upon, the Turnpike Authority will prepare design drawings and permit applications for submission to the appropriate regulatory entities for review and approval. The compliance statement for the Individual Permit is provided in Section 4.3 below.

The wetland impacts by milepost and type are documented at the beginning of this report.

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### **Wetland Buffers (N.J.A.C. 7:7E-3.28)**

The wetland areas within the project corridor have associated transition areas (buffers) ranging from 50 to 300 feet. The project will impact 93.46 acres of wetland buffer areas. These impacts are associated with direct wetland impacts and direct buffer impacts associated with this linear development. Where feasible, the buffer areas were avoided during the design of the project to minimize impacts. Per the applicable policies associated with the Freshwater Wetlands Individual Permit, wetland buffer mitigation is not required.

### **Coastal Bluffs (N.J.A.C. 7:7E-3.31)**

Not applicable. No coastal bluffs are located within the project area.

### **Intermittent Stream Corridors (N.J.A.C. 7:7E-3.32)**

There are numerous unnamed intermittent stream corridors located within the project area. Because of their sensitivity to surface and subsurface disturbance, the preferred alternative will avoid or bridge these areas whenever possible.

### **Farmland Conservation Areas (N.J.A.C. 7:7E-3.33)**

Not applicable. No contiguous areas of 20 acres or greater which are actively farmed exist within the project corridor.

### **Steep Slopes (N.J.A.C. 7:7E-3.34)**

Portions of the shoulder within the project corridor have been graded to a slope of 15 percent or greater. In areas where the roadbed of the project will expand into the highway median, these steep slope areas will not be disturbed. However, in those areas where the roadbed will be expanded outward away from the median, these sites may be re-graded or removed.

### **Dry Borrow Pits**

The project will require over 317,566 cubic yards of fill. This fill will be obtained from the project excavation (cut) of approximately 1.3 million cubic yards and placed as borrow excavation (fill). Borrow excavation will be obtained from permitted mining sites, and will be clean material free of contaminants and hazardous material.

### **Historic and Archaeological Resources (N.J.A.C. 7:7E-3.36)**

Section 3.11 provides a comprehensive analysis of the Historic and Archaeological Resources associated with the project. Additionally, the NJTA's sub-consultant – Gannett Fleming is in the process of finalizing a comprehensive alternatives analysis for SHPO. This document will be submitted to the regulatory agencies under separate cover. This alternatives analysis was prepared as a result of the preliminary analysis from the NJDEP.

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### **Specimen Trees (N.J.A.C. 7:7E-3.37)**

Not applicable. There are no specimen trees within the project area listed in the NJDEP Division of Parks and Forestry's "New Jersey's Biggest Trees."

### **Endangered or Threatened Wildlife or Plant Species Habitats (N.J.A.C. 7:7E-3.38)**

The policy states that "areas known to be inhabited on a seasonal or permanent basis by or to be critical at any stage in the life cycle of any wildlife (fauna) or vegetation (flora) identified as 'endangered' or 'threatened' species on official Federal or State lists of endangered or threatened species, or under active consideration for State or Federal listing, are considered Special Areas". Development in this special area is prohibited unless it can be demonstrated that endangered or threatened wildlife or vegetation species habitat will not be impacted.

An endangered and threatened species investigation for the GSP between Interchanges 30 and 80 was performed by Amy S. Greene Environmental Consultants, Inc. (ASGECI). This investigation, including surveys, was performed in the years 1998, 1999, and 2000 and was performed as part of the planning process for an extensive widening project. In 2006, ASGECI obtained an updated search of the New Jersey Natural Heritage Program database, and coordinate with the US Fish and Wildlife Service to determine if any new species have been identified in the project area.

As the proposed project area is within the jurisdiction of both the NJDEP and the NJPC, both agencies were consulted in developing the methodology for performance of the endangered and threatened species investigation.

The policy states that "areas known to be inhabited on a seasonal or permanent basis by or to be critical at any stage in the life cycle of any wildlife (fauna) or vegetation (flora) identified as 'endangered' or 'threatened' species on official Federal or State lists of endangered or threatened species, or under active consideration for State or Federal listing, are considered Special Areas". Development in this special area is prohibited unless it can be demonstrated that endangered or threatened wildlife or vegetation species habitat will not be impacted.

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As the proposed project area is within the jurisdiction of both the NJDEP and the NJPC, both agencies were consulted in developing the methodology for performance of the endangered and threatened species investigation. Please see Section 3.5 above.



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### **Critical Wildlife Habitats (N.J.A.C. 7:7E-3.39)**

Amy S. Greene Environmental Consultants (ASGECI) has prepared an Endangered and Threatened Species Impact Assessment and Species Management Plan August 28, 2006 to identify suitable and potential habitat for threatened and endangered (T & E) plant and animal species as well as the investigation of known T & E species within the entire project corridor. Additionally, ASGECI prepared a Survey of Federally listed Plant Species dated October 9, 2006 at the request of the US Fish and Wildlife Service (USFWS) to determine if there will be any direct impacts to these sensitive species. As indicated in these reports, the proposed project will impact approximately 68 acres of T & E Habitat. Direct impacts to known populations of T&E species are not expected to result from the project. Short-term impacts related to construction activities will be managed in accordance with NJDEP and NJPC requirements as well as the Species Management Plan. Measures such as timing restrictions, exclusion fencing, and the presence of qualified biologists at work sites will be utilized to prevent impacts to T&E species during construction.

The NJDEP – Division of Fish Game and Wildlife (DFGW) has provided Critical Wildlife Habitat mapping and as a result of our analysis, we have determined that there are 46 acres of critical wildlife habitat. In an effort to mitigate this impact, the NJTA proposes to reforest a portion (90 acres) of the Forked River Game Preserve. This portion of the Game Preserve was historically farmed and represents a significant potential for critical wildlife to occupy this area upon completion of the planting. This proposal is being finalized with the NJDEP Division of Fish, Game and Wildlife. The NJTA will fund this project to offset the critical wildlife impacts.

Lastly, it is important to note that the Species Management Plan prepared by ASGECI denotes that a field qualified biologist will be present during the construction of the roadway to determine if there will be any direct impacts to species. In the event a species is encountered during construction, the NJDEP and NJPC will be notified.

### **Public Open Space (N.J.A.C. 7:7E-3.40)**

The project site is located within the Pinelands National Reserve Area as well as several county and municipal land areas. For a further description of the Pinelands Area, see below.

### **Special Hazard Areas (N.J.A.C. 7:7E-3.41)**

The proposed project is not in a special hazard area and research has found no evidence of any hazardous material sites within the Turnpike Authority right-of-way.

### **Excluded Federal Lands (N.J.A.C. 7:7E-3.42)**

Not applicable. A portion of the Federal Aviation Administration's (FAA) William J. Hughes Technical Center, located within the Atlantic City International Airport, is within the project corridor. However, all project work shall take place within the Parkway's right-of-way and will not affect any federal lands near the Technical Center.

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### **Special Urban Areas (N.J.A.C. 7:7E-3.43)**

Not applicable. No special urban areas exist within the project area.

### **Pinelands National Reserve (N.J.A.C. 7:7E-3.44)**

The project site is located within the Pinelands National Reserve Area. Coastal development shall be consistent with the State Pinelands Protection Act of 1979 (N.J.S.A. 13:18A-1 et seq.) Within the Pinelands Area, the Pinelands Commission will serve as a reviewing agency for coastal construction permit applications. The NJPC is reviewing the project for compliance with the comprehensive management plan and will issue a Memorandum of Agreement once the review is complete. It is important to note that the NJPC has created a transportation overlay district for the GSP.

As stated above, the project is located within the Pinelands National Reserve Area and encompasses the following towns:

Ocean County: South Toms River Borough, Berkley Township, Beachwood Borough, Lacey Township, Barnegat Township, Stafford Township, Ocean Township, Eagleswood Township, Little Egg Harbor Township

Burlington County: Bass River Township

Atlantic County: City of Port Republic, Galloway Township, Egg Harbor Township, City of Somers Point

Section 4.1 of this report presents the compliance with the New Jersey Pinelands Comprehensive Management Plan.

### **Wild and Scenic River Corridors (N.J.A.C. 7:7E-3.46)**

The project area falls within three rivers classified as Wild and Scenic Rivers Corridors: the Mullica, the Bass River and the North Branch of the Forked River. All structures within 1000 feet of these areas will be designed to avoid any change to visual impacts as viewed from the river.

### **Geodetic Control Reference Marks (N.J.A.C. 7:7E-3.47)**

Geodetic control reference marks are defined as “traverse stations and benchmarks established or used by the New Jersey Geodetic Control Survey.” These reference marks provide the horizontal and vertical references used by land surveyors and engineers to determine elevations and specific locations. No geodetic reference marks will be disturbed within the project corridor.

### **Hudson River Waterfront Area (N.J.A.C. 7:7E-3.48)**

Not applicable. This project does not fall within the Hudson River waterfront.

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### 4.2.3 General Water Areas (N.J.A.C. 7:7E-Subchapter 4)

General Water Areas is divided into two categories using the same definitions for Water and Land used for Special Areas. They are then classified into eight categories based upon volume and flushing rate. These categories are:

- Lakes, ponds, and reservoirs
- Large rivers (watersheds greater than 1000 square miles)
- Manmade Harbors
- Medium Rivers, Creeks, and Streams (watersheds less than 1000 square miles)
- Ocean
- Open bay
- Semi-enclosed and back bay
- Tidal guts or thorofares

Several of these General Water Areas exist within the project area. However, only the standards for bridges apply to this project.

### Filling (N.J.A.C. 7:7E- 4.10)

The proposed project will require the placement of fill within Freshwater Wetlands, Coastal Wetlands, State open Waters and buffer areas. The project will require the placement of approximately 317,566 cubic yards of fill and will result in the disturbance of 7.707 acres of wetlands and open waters. As a result of this disturbance, the NJTA is seeking the approval of a Freshwater Wetlands Individual Permit. As a portion of this approval, the NJTA plans to mitigate the wetland impacts associated with the project. The mitigation package will consist of wetland creation, enhancement and preservation. The mitigation proposal is still under negotiations with the Department. Once the mitigation proposal is refined and approved by the Department, a complete application will be submitted to the regulatory agencies for review and approval.

The placement of fill will be conducted in accordance with the Freshwater Wetlands Protection Act. Based on our analysis of the project and selection of the preferred alternative, there is no alternative to the placement of fill as the roadway alignment is controlled by the existing roadway. Where possible, the impacts have been minimized to the maximum extent through the implementation of T-Walls for the Bass and Mullica River and reduced side slopes. The original wetland impact associated with the project was 80 acres and has been significantly reduced through minimization to 7.707 acres. Additionally, the pier design within the Mullica River and Bass River has been greatly reduced by utilizing individual piers as compared to the a traditional pier cap design and fender system.

All fill will be clean suitable material in accordance with the NJTA's design specifications.

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## **Standards Relevant to Bridges (N.J.A.C. 7:7E- 4.13)**

A significant portion of the proposed project involves the duplication and rehabilitation of the Bass River and Mullica River Bridges. These structures are in critical need of rehabilitation. The existing Bass River Bridge and Mullica River Bridge structures will remain in place and new bridges will be constructed adjacent to the existing bridges. Once the new bridges are constructed, the current bridges will be rehabilitated and the decks will be replaced.

The following list depicts the bridge crossings affected by the proposed project by milepost, and the proposed construction type:

➤ Patcong Creek	MP 31.0	Widen / New Bridge Deck
➤ Ocean Heights	MP 31.6	Widen
➤ Jeffers Landing Road	MP 32.0	Widen
➤ Zion Road	MP 33.5	Widen
➤ Mill Road	MP 34.5	Widen
➤ Tilton Road	MP 36.1	Widen
➤ Black Horse Pike	MP 36.2	Widen
➤ West Jersey RR	MP 36.3	Widen
➤ Washington Avenue	MP 36.6	Widen
➤ Delilah Road	MP 37.7	Widen
➤ Westcoat Road	MP 38.9	Widen
➤ AC Reservoir Outfall	MP 39.3	Widen
➤ Penn Reading RR	MP 39.9	Widen
➤ White Horse Pike	MP 40.0	Widen
➤ Clarks Landing Road	MP 45.9	Widen
➤ Stafford Forge Road	MP 60.4	Widen
➤ Mullica River Span	MP 48.7	New Bridge / Rehab Ex. Structure
➤ Bass River Span	MP 50.5	New Bridge / Rehab Ex. Structure
➤ Route 72 Span	MP 64.1	Widen
➤ Pinewald Keswick Road	MP 77.4	Replacement
➤ North Branch Forked River	MP 74.9	Replacement
➤ Cedar Creek Span	MP 76.8	Replacement

The proposed project does not provide any bicycle / pedestrian access or fishing catwalks and platforms on the affected new structures. Please refer to the Public Access to the Waterfront portion of this document (NJAC 7:7E-8.11) with regard to the NJTP's policies and procedures with regard to access within non-specified areas.

The Garden State Parkway is a limited access highway. As such the Turnpike Authority's rules and regulations do not authorize the creation of public access to the water front location within the Parkway right-of-way. In addition, such public access locations could pose a security threat to the Parkway infrastructure and the potentially difficult location for the Turnpike Authority to police and protect. Based on discussions with representatives of the NJDEP and the Turnpike Authority, will include public access as an element of the off-site proposal. As a portion of the proposed project, the

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NJTA is proposing the creation of three public access areas to the waterfront. The proposed public access locations will provide public fishing areas. The access locations will be within areas that are designated a prime fishing areas. The public access locations will be located within the vicinity of the Bass River and Mullica River. The exact locations of the public access areas are currently being negotiated with the NJDEP. Once the final locations are determined, formal design plans and permit applications for the public access facilities will be submitted to the NJDEP and USACOE for review and approval.

#### **4.2.4      General Land Areas (N.J.A.C. 7:7E-Subchapter 5)**

The acceptability of Land Areas is defined in terms of three levels of acceptable development intensity. Assessment of these three factors indicates the appropriate pattern of development from a broad, regional perspective and provides a method for determining the acceptable intensity of development of specific sites, as well as entire regions. The three factors are:

- Coastal Growth Rating
- Environmental Sensitivity
- Development Potential.

As no development potential is defined for this type of project, this policy is not applicable.

#### **4.2.5      General Location Rules (N.J.A.C. 7:7E-Subchapter 6)**

A linear development, such as, but not limited to a road, sewer line, public walkway or offshore pipeline, that must connect two points to function shall comply with the specific location rules to determine the most acceptable route, to the maximum extent practicable.

#### **Linear Development (N.J.A.C. 7:7E – 6.1)**

Based on the policy associated with Linear Developments, an alternatives analysis was prepared to determine the most feasible alignment of the roadway with respect to the roadway geometry, wetland impacts and T & E impacts. The proposed alignment is the most feasible alternative roadway configuration alternative. The majority of the widening will take place within the median and combination of median / outer lane of the northbound and southbound approaches. In certain instances the widening will take place completely within the outer lane of the northbound and southbound approaches due to the lack of media.

The selected alternative will require the permanent loss of unique areas, however, the NJTA will mitigate for these impacts by mitigating the wetland impacts, reforesting the Forked River Game Preserve critical wildlife habitat impacts, providing off-site access to the waterfront, and installing nine new osprey nests and three barn owl nests within the area of the Mullica River providing mitigation for impacts to threatened and endangered species suitable habitat and mitigating for adverse effects to certain historic resources. The NJTA has minimized the impacts to the maximum extent practicable. It is important to note that a significant portion of the widening project was controlled by the location of the existing roadway. In accordance with the linear development

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policy, the proposed alignment is located within an existing transportation corridor and is controlled by the existing alignment and right of way.

### **Basic Location Rule (N.J.A.C. 7:7E – 6.2)**

The basic location policies 1) promote public health, safety and welfare, 2) protect public and private property, wildlife and marine fisheries and 3) preserve, protect and enhance the natural environment.

#### **Promote Public Health, Safety and Welfare:**

The proposed project will promote public health, safety and welfare by alleviating traffic congestion and reducing vehicular collisions throughout the project area. This project will allow greater mobility within the region and will improve emergency access between all three counties. The widening of the GSP is in response to current and future failure conditions generated by excessive traffic volumes. The improvements will have impacts on the environment; however, the project will improve current conditions and reduce congestion. As stated in the traffic portion of this report, the Interchange 74 to Interchange 80 segment has been experiencing delays to traffic due to capacity limitations since before 1995. By widening the roadway, traffic conditions will vastly improve ultimately promoting public health, safety and welfare.

#### **Protect Public and Private Property, Wildlife and Marine Fisheries:**

The proposed project will protect public and private property as the roadway will take place within the existing Parkway right-of-way except for minor property acquisitions at certain river crossings. There are nine small parcels of vacant land and/or State owned Tidelands that will be purchased for the proposed bridge improvements. With regard to wildlife and marine fisheries, the NJTA is working with the Departments Bureau of Shellfisheries to develop a monitoring plan to ensure that the construction of the Mullica River Bridge does not adversely affect the existing oyster beds located down river of the location of the proposed new Mullica River Bridge. There will be impacts to Threatened and Endangered species and critical wildlife habitat. These areas will be mitigated through the preservation of available property and the reforestation of the Forked River Game Preserve for Critical Wildlife Habitat impacts. The NJTA is also in the process of discussing the potential installation of multiple wildlife crossings under the Parkway. The applicant has minimized impacts where feasible to reduce disturbance to sensitive receptors. It is important to note there are no direct impacts anticipated to marine fisheries. The Essential Fish Habitat report is under review by National Marine Fisheries.

#### **Preserve, Protect and Enhance the Natural Environment:**

As stated above the proposed project will have impacts on the environment. Were feasible the applicant has minimized impacts to preserve, protect and enhance the natural environment. It is important to note that the project will take place mainly within the existing right-of-way that was initially disturbed as a result of the construction of the GSP in the 1950's. As a portion of the improvements, the applicant is implementing Best Management Practices to reduce impacts associated with the widening. Where feasible, minimization of impacts has taken place. An example of the minimization of the project include the design and installation of retaining-walls within the area of the bridges. The retaining-walls significantly reduce wetland and T & E Impacts. Additionally, the side

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slopes of the roadway, where applicable, will be steepened to decrease impacts. In addition, if utilized, the NJDEP has indicated that the installation of wildlife tunnels under the Parkway would represent an enhancement of the existing threatened and endangered species habitat by providing a vital link between wildlife populations that have been virtually separated since the construction of the Parkway.

### **Secondary Impacts (N.J.A.C. 7:7E – 6.3)**

T&M Associates has completed a detailed report and report amendment addressing the proposed project's potential to generate secondary impacts. The scope of the report was jointly developed by the Authority, the Department and Pinelands. The report has been reviewed by the Pinelands Commission and they have determined that a supplemental analysis must be conducted by the Delaware Valley Regional Planning Commission ("DVRPC"). According to a recent correspondence from the Pinelands, the DVRPC will complete its analysis of the report in mid-March. We anticipate that the Pinelands and the Department will jointly provide recommendations concerning this issue immediately following the conclusion of the DVRPC's analysis.

The report and subsequent amendment were completed in accordance with the NJDEP's requirements and NJPC's requirements. As stated throughout this report, the widening of the GSP is in response to failing roadway conditions associated with development that has occurred throughout the region adjacent to the GSP and the NJTA does not believe that the proposed project is capable of generating secondary impacts or changes in the location, pattern or intensity of land use within the region inconstant with the existing land use controls governing the area. The NJDEP has received copies of the report and subsequent amendment for review.

#### **4.2.6      Use Rules (N.J.A.C. 7:7E-Subchapter 7)**

The following Use Policies are described in terms of applicability to the project site:

### **Transportation Use Policies (N.J.A.C. 7:7E – 7.5)**

The Transportation Use Policies address four (4) areas: new road construction, public transportation, bicycle and foot paths, and parking facilities. The proposed project is consistent with the Policy on Location of Linear Development (7:7E-6.1). The Traffic Impact Study justifies the need for the proposed widening. No induced development is anticipated. Bicycle paths or foot paths are not feasible for this project. No public parking facilities are proposed.

#### **4.2.7      Resource Rules (N.J.A.C. 7:7E-Subchapter 8)**

The following Resource Policies are described below in terms of applicability to the project site:

### **Water Quality & Stormwater Management (N.J.A.C. 7:7 E – 8.4 & 8.7)**

The proposed project will not contribute to a violation of the State Water Quality Standards. The final design of the proposed project will meet the requirements of the Department's Phase II Regulations pertaining to stormwater management and water quality maintenance. Additional impervious surface will be created by the proposed improvements. Post development runoff rates will be limited to

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predevelopment rates through the use of a system of infiltration basins, perforated pipes, special structures and natural groundwater recharge, in accordance with Standard for Soil Erosion and Sediment Control in New Jersey prepared by the New Jersey State Soil Conservation Committee. Stormwater runoff during construction will be regulated in accordance with State approved standards deemed necessary by the Ocean Burlington and Atlantic County Soil Conservation Districts and the New Jersey Pinelands Commission. A Stormwater Management Plan has been submitted under separate cover with the stream encroachment permit application. It is important to note that the Department and the NJPC have requested revisions to the submitted plan. These revisions will be completed shortly and will likely result in a minor increase in impacts to suitable threatened and endangered species habitat located with the Parkway median as a result of additional storm water features.

### **Vegetation (N.J.A.C. 7:7E – 8.8)**

The entire proposed project area from Interchange 30 to Interchange 80 contains over 2,600 acres of vegetated area. The proposed project will require the clearing of 155.58 acres of vegetation (11 % of the total vegetated area within the project corridor), of which 66.74 acres of clearing is required for the construction of the stormwater swales in order to meet the Phase II Stormwater Regulations. The vegetation throughout the project corridor is broken down and described below:

#### Upland Forest Communities:

- Pitch Pine Forest
- Oak-Pine Forest
- Oak Forest
- Plantation (Coniferous)

#### Successional Field

- Herbaceous Old Field
- Woody/Late Old Field
- Unvegetated/Barren (with small patches of vegetation)

#### Wetlands

- Pitch Pine Lowland
- Hardwood Swamp
- Cedar Swamp
- Deciduous Scrub-Shrub Wetland
- Evergreen Scrub-Shrub Wetland
- Emergent Wetland
- Successional Emergent Wetland
- Tidal High Marsh
- Tidal Low Marsh

These communities are described as follows:

#### **Pitch Pine Forest**

Pitch pine forests are extensive throughout the project corridor. They are dominated by pitch pine (*Pinus rigida*) with 75% or greater aerial coverage. Oaks may also be present at up to about 30% of the canopy coverage. Oak species typically include black jack oak (*Quercus marilandica*), post oak (*Quercus stellata*), white oak (*Quercus alba*), pin oak (*Quercus palustris*), and southern red or Spanish oak



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(*Quercus falcata*). Sassafras (*Sassafras albidum*) and black cherry (*Prunus serotina*) are also present to a lesser extent. The sapling layer may be well developed, and sapling and shrub cover combined may exceed 80%. Typical shrubs in this habitat type include sheep laurel (*Kalmia angustifolia*), inkberry (*Ilex glabra*), lowbush blueberry (*Vaccinium pallidum*), and black huckleberry (*Gaylussacia baccata*). Bracken fern (*Pteridium aquilinum*) is common in some areas. Glaucus and common greenbrier (*Smilax glauca* and *S. rotundifolia*, respectively) are common in this layer. The ground cover is sparse, due to the thick understory, and is dominated by teaberry (*Gaultheria procumbens*). Bare ground is usually less than 5%.

#### Oak-Pine Forest

This habitat type is co-dominated by pitch pine and various oaks (same oak species as above). The canopy closure tends to be 80% or higher. The sapling layer tends to be mainly hardwoods, and is about 10 to 25% aerial cover. The shrub layer is dominated by lowbush blueberry and black huckleberry, and averages about 50% aerial cover. Bracken fern is very common in some areas. Less than 10% of the ground surface is bare, and up to about 30% is covered by herbaceous species. The dominant herb is teaberry.

#### Oak Forest

The oak forest habitat type is similar to the oak-pine forest type, except that the trees tend to be less dense (about 75% or less canopy closure), and there is much less pitch pine (less than 25%). The sapling layer is about 25% aerial cover or less, and is dominated by oak. The shrub layer is dense, at about 80% aerial cover, and is dominated by lowbush blueberry and black huckleberry. The herbaceous layer is sparse and dominated by teaberry. Less than 10% of the ground surface is bare.

#### Plantation

Plantations contain mature conifers such as red pine (*Pinus resinosa*), Norway spruce (*Picea abies*), and white pine (*Pinus strobus*). Evenly spaced rows of trees characterize the plantation. There is little understory or herbaceous growth due to the high density of the canopy cover (near 100%).

#### Herbaceous Old Field

Herbaceous old fields are areas that have been left unmowed for several years. Grasses and other herbaceous species dominate them. These include switchgrass, Pennsylvania sedge (*Carex pennsylvanica*), chickory (*Cichorium intybus*), spotted knapweed (*Centaurea maculosa*), and a wide variety of other species. These areas may also have a small component (less than 25%) of woody vegetation, such as red cedar (*Juniperus virginiana*), red maple, pitch pine, and oak seedlings; as well as lowbush blueberry, chokeberry (*Aronia spp.*), blackberry (*Rubus spp.*), multiflora rose (*Rosa multiflora*) and other shrubs.

#### Woody/Late Old Field

This habitat type is composed of areas, formerly cleared or mowed, which have been left un-mowed for several years and are dominated by woody vegetation. Woody vegetation can be up to 80% aerial coverage. Species composition is largely the same as that described under Herbaceous Old

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Field above. In addition, saplings are more prevalent and may include oaks, sassafras, red cedar, black cherry, and pitch pine.

#### Pitch Pine Lowland

This habitat type is dominated by pitch pine, with a component of up to 50% red maple (*Acer rubrum*). Other species, such as sweet bay magnolia (*Magnolia virginiana*) and Atlantic white cedar (*Chamaecyparis thyoides*), may make up a small component of the canopy. Canopy closure is typically greater than 80%. Bare ground is usually less than 5%. A dense understory shrub layer is usually present, usually between 50 and 80% aerial cover. Species typically included in the shrub layer include highbush blueberry (*Vaccinium corymbosum*), fetterbush (*Leucothoe racemosa*), dangleberry (*Gaylussacia frondosa*), sweet pepperbush (*Clethra alnifolia*), sheep laurel, swamp azalea (*Rhododendron viscosum*), and inkberry. Common greenbrier is also common. Ground cover includes cinnamon fern (*Osmunda cinnamomea*) and Sphagnum mosses.

#### Hardwood Swamp

This habitat type is dominated by red maple. It may have a component of up to 20% pitch pine. The canopy often includes sweet bay magnolia and black gum (*Nyssa sylvatica*). The canopy closure is usually 75 to 100%. The sampling layer is up to 50% aerial cover. The understory shrub layer includes highbush blueberry, sweet pepperbush, and inkberry. Some hardwood swamps have a large component of cinnamon fern in the herbaceous layer. Sphagnum mosses are also common. Less than 5% of the ground is barren. There is some isolated ponding.

#### Cedar Swamp

Cedar swamps are common along streams and rivers within the study area. Atlantic white cedar forms a dense canopy (80 to 100% closure), with other species, such as red maple, sweetbay magnolia, and pitch pine, composing 10% or less of the canopy. The sapling layer is not well developed. The shrub layer is usually sparse, and includes species such as highbush blueberry, swamp azalea, and sweet pepperbush. There is usually a well-developed Sphagnum layer. Liverworts are also very common.

#### Deciduous Scrub/Shrub Wetland

Deciduous scrub/shrub wetlands are composed mainly of shrub species with a few small red maple or sweet bay magnolia saplings. The most common shrubs in these areas are fetterbush, maleberry (*Lyonia ligustrina*), staggerbush (*Lyonia mariana*), highbush blueberry, swamp azalea, sweet pepperbush, and winterberry (*Ilex verticillata*). These areas are filled with hummocks. Sphagnum mosses often form around the hummocks.

#### Evergreen Scrub/Shrub Wetland

These areas are dominated by small Atlantic white cedars and pitch pines. Common shrubs would include sheep laurel, leatherleaf (*Chamaedaphne calyculata*), and cranberry (*Vaccinium macrocarpon*). Common herbaceous species include woolgrass (*Scirpus cyperinus*), cottongrass (*Eriophorum virginicum*), white beaked rush (*Rhynchospora alba*), bush broomsedge (*Andropogon glomerata*), Canada rush (*Juncus*

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*canadensis*), round-leaved, spatulate-leaved, and thread-leaved sundew (*Drosera rotundifolia*, *intermedia*, and *filiformis*, respectively), and pitcher plant (*Sarracenia purpurea*). There is usually a thick layer of Sphagnum mosses.

### Emergent Wetland

Emergent wetlands are areas with little or no wood vegetation, and are usually dominated by rushes, sedges, and/or grasses. Common dominant species include switchgrass (*Panicum virgatum*), bushy broomsedge, woolgrass, common cattail (*Typha latifolia*), soft rush (*Juncus effusus*), bur-reed (*Sparganium americanum*), Canada rush, and pipeworks (*Eriocaulon* spp.). Emergent wetlands are common along waterways and in ditches.

### Successional Emergent Wetland

These areas are largely the result of human activity, such as sand and gravel mining. They are intermittently ponded. These areas contain some wood vegetation, such as young pitch pine or Atlantic white cedar, but typically less than 10% aerial coverage. They may also include highbush blueberry, dwarf huckleberry (*Gaylussacia dumosa*), fetterbush, staggerbush, bayberry (*Myrica pensylvanica*), and cranberry. They are dominated by such herbaceous plants as switchgrass, bushy broomsedge, Canada rush, and broom sedge (*Andropogon glomeratus*). Patches of spatulate-leaved sundew are also common.

### Tidal High Marsh

These areas are located along large tidal waterways, such as the Bass River, Mullica River, and Patcong Creek. The areas are extensive, and tend to border upland fill along roadways. The dominant plants in this habitat type include salt-meadow grass (*Spartina patens*), spike grass (*Distichlis spicata*), black grass (*Juncus gerardi*), salt marsh bulrush (*Scirpus robustus*), and salt marsh cordgrass (*Spartina alterniflora*). Some areas have an abundance of shrubs such as marsh elder (*Iva frutescens*) and groundsel tree (*Baccharis halimifolia*). Common reed (*Phragmites australis*) is often invasive in these areas.

### Tidal Low Marsh

These areas are also located along large tidal waterways. They are closer to the open water than tidal high marsh. Typically, these areas are dominated by salt marsh cordgrass. Patches of salt-meadow grass, spike grass, and black grass may be included. In many areas, Tidal High Marsh and Tidal Low Marsh form a complex patchwork.

## **OBSERVED DOMINANT PLANT SPECIES IN THE PROJECT CORRIDOR**

<b>Common Name</b>	<b>Scientific Name</b>
<b>TREES</b>	
Red Maple	<i>Acer rubrum</i>
Atlantic White Cedar	<i>Chamaecyparis thyroides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>
Sweet Bay Magnolia	<i>Magnolia virginiana</i>

	LOCATION	VEGETATION CLEARING	
		Square Feet	Acres
1	Interchange 30 M.P. 30 - Ocean Heights Ave. M.P. 31.6	4,825	0.11
2	Ocean Heights Ave.M.P. 31.6 - Steelmanville Rd. M.P. 32.0	95,027	2.18
3	Steelmanville Rd. M.P. 32.0 - Popular Rd. M.P. 32.8	111,332	2.56
4	Popular Rd. M.P.32.8 - Central Ave. M.P. 33.3	198,647	4.56
5	Central Ave. M.P. 33.3 - Zion Rd. M.P. 33.55	0	0.00
6	Zion Rd. M.P. 33.55 - Mill Rd. M.P. 34.5	137,361	3.15
7	Mill Rd. M.P. 34.5 - Interchange 36 M.P. 35.6	1,032	0.02
	<b>Interchange 30 - Interchange 36 TOTAL</b>	<b>548,224</b>	<b>12.59</b>
8	Interchange 36 M.P. 35.6 - Tilton Rd. M.P. 36.1	38,992	0.90
9	Tilton Rd. M.P. 36.1 - Black Horse Pike M.P. 32.6	50,520	1.16
10	Black Horse Pike M.P. 36.2 - Washington Ave. M.P. 36.6	167,727	3.85
11	Washington Ave. M.P. 36.6 - Int. 38 Atlantic City Expressway M.P. 37.2	50,992	1.17
	<b>Interchange 36 - Interchange 38 TOTAL</b>	<b>308,231</b>	<b>7.08</b>
12	Interchange 38 A.C. Expressway M.P. 37.2 - Delilah Rd. M.P. 37.7	131,906	3.03
13	Delilah Rd. M.P.37.7 - Westcoat Rd. M.P. 38.9	232,047	5.33
14	Westcoat Road 38.9 - Interchange 40 White Horse Pike M.P. 40.0	128,361	2.95
	<b>Interchange 38 - Interchange 40 TOTAL</b>	<b>492,314</b>	<b>11.30</b>
15	Interchange 40 White Horse Pike M.P. 40.0 - A.C. Service Area M.P. 41.4	293,688	6.74
16	A.C. Service Area M.P. 41.4 - Jimmy Leeds Rd. M.P. 41.7	109,483	2.51
17	Jimmy Leads Rd. M.P. 41.4 - English Creek Rd. M.P. 44.0	138,680	3.18
	<b>Interchange 40 - Interchange 44 TOTAL</b>	<b>541,851</b>	<b>12.44</b>
18	English Creek Rd. M.P.44.0 - Clarks Landing Rd.M.P. 45.9	334,463	7.68
19	Clark Landing Rd. M.P. 45.9 - Interchange 48 M.P. 48.2	500,450	11.49
	<b>Interchange 44 - Interchange 48 TOTAL</b>	<b>834,913</b>	<b>19.17</b>
20	Interchange 48 M.P. 48.2 - Interchange 50 M.P. 50.6	0	0.00
	<b>Interchange 48 - Interchange 50 TOTAL</b>	<b>0</b>	<b>0.00</b>
21	Interchange 50 M.P. 50.6 - Interchange 52 East Greenbush Road M.P. 52.7	187,658	4.31
	<b>Interchange 50 - Interchange 52 TOTAL</b>	<b>187,658</b>	<b>4.31</b>
22	Interchange 52 East Greenbush Road M.P. 52.7 - New Gretna Toll Plaza M.P. 53.5	2,300	0.05
23	New Gretna Toll Plaza M.P. 53.5 - Stage Rd. M.P. 54.2	339,804	7.80
24	Stage Rd. M.P. 54.2 - Interchange 58 North Green Street Route 539 M.P. 58.6	805,034	18.48
	<b>Interchange 52 - Interchange 58 TOTAL</b>	<b>1,147,138</b>	<b>26.33</b>
25	Interchange 58 North Green Street Route 539 M.P. 58.6 - Stafford Forge Road M.P. 60.0	188,872	4.34
26	Stafford Forge Road M.P. 60.0 - Interchange 63 Route 72 M.P. 64.1	757,599	17.39
	<b>Interchange 58 - Interchange 63 TOTAL</b>	<b>946,471</b>	<b>21.73</b>
27	Interchange 63 Route 72 M.P. 64.1 - Interchange 67 Bay Ave. (C.R. 554) M.P. 67.8	638,842	14.67
	<b>Interchange 63 - Interchange 67 TOTAL</b>	<b>638,842</b>	<b>14.67</b>
28	Interchange 67 Bay Ave. (C.R. 554) M.P. 67.8 - Barnegat Toll Plaza M.P. 68.9	301,469	6.92
29	Barnegat Toll Plaza M.P. 68.9 - Interchange 69 Waretown Rd. (C.R. 532) M.P. 70.5	134,867	3.10
	<b>Interchange 67 - Interchange 69 TOTAL</b>	<b>436,336</b>	<b>10.02</b>
30	Interchange 69 Waretown Rd. (C.R. 532) M.P. 70.5 - Interchange 74 Lacey Road M.P. 75.6	253,647	5.82
	<b>Interchange 67 - Interchange 74 TOTAL</b>	<b>253,647</b>	<b>5.82</b>
31	Interchange 74 Lacey Raod M.P. 75.6 - Pinewald Keswick Road Route 618 M.P. 77.4	158,734	3.64
32	Pinewald Keswick Road Route 618 M.P. 77.4 - Birch Street M.P. 79.9	254,351	5.84
33	Birch Street M.P.79.9 - Interchange 80 Dover Road M.P. 80.6	28,528	0.65

	Interchange 74 - Interchange 80 TOTAL	441,613	10.14
	TOTALS	6,777,238	155.58

	Interchange 30 - Interchange 63	5,006,800	114.94
	Interchange 63 - Interchange 80	1,770,438	40.64
		6,777,238	155.58

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### **Air Quality (N.J.A.C. 7:7E – 8.10)**

The proposed project will not violate the Federal Clean Air Act or State laws which regulate air quality. Please refer to the Air Quality Report prepared under separate cover by Parsons Brinkerhoff, Quade & Douglas, Inc. Dated July 2002 for further information on impacts to air quality.

Based on recent information from the NJDEP, the Air Quality Report is being reviewed by the NJDEP and a formal response will be provided in the near future.

### **Public Access to the Waterfront (N.J.A.C. 7:7E- 8.11)**

The proposed project does not include public access to the waterfront within the project corridor. However, the proposed project will include public access to the waterfront as a portion of the off site proposal in an effort to satisfy the NJDEP's requirement. Based on previous discussions with NJDEP personnel, off site public access to the waterfront is acceptable to satisfy NJAC 7:7E-8.1. Public access to the waterfront can not be provided within the project corridor for the following reasons:

- Security – providing public access within close proximity to / or under bridges poses a security concern. Additionally, public access areas would be hard to police due to its remoteness.
- Management – creating public access areas that will require additional maintenance and upkeep is a burden and the NJTA does not have the necessary resources to manage these areas.
- Environmental Impact - the creation of additional public access locations will create additional environmental impacts within wetland and T & E species habitat. Additionally, the introduction of humans within areas adjacent to wetlands and T & E habitat, would affect these sensitive environments.
- NJTA Regulations – providing public access within non-specified areas is a violation of NJTA Regulations which designate the GSP as authorized access roadway.

T & M Associates has met with representatives of the NJDEP and ACOE to review several public access locations. To date, we are proposing to design, permit and fund two public access locations and we are currently seeking one additional location within the area of the Mullica River. The two proposed locations consist of the following:

#### **Site No. 1: Great Bay Boulevard Public Access**

This proposal consists of the design, permitting and funding of public access improvements to a State owned piece of property. There is currently a failed bulkhead and unimproved parking area with no real public access location to the water. This proposal consists of a bulkhead replacement and at grade boardwalk, boat launch facility and parking improvements. Once we receive written authorization to proceed with this property, we will submit a design and permits application to the NJDEP and ACOE. As per the regulatory agencies, all public access sites and mitigation sites must be approved prior to the authorization of the mainline widening.

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## **Site No. 2: Bass River Public Access**

This proposal consists of the design, permitting and construction of a public access pier on a tidal pond associated with the Bass River. This property is under contract with the NJTA's wetland mitigation sub-consultant and will be designed and built by Evergreen Environmental. Once we receive written authorization to proceed with this property, design plans and permits applications will be submitted to the NJDEP and ACOE.

## **Site No. 3: To be Determined**

We will coordinate with the NJDEP and ACOE to locate this third public access location. Once this area has been determined and the regulatory agencies approve the proposal, we will prepare and submit design plans and permit applications to the agencies for review and approval.

## **Scenic Resources and Design (N.J.A.C. 7:7E- 8.12)**

The project corridor has been designated by SHPO as an eligible entry on the State and National Register of Historic Places. The proposed project also travels through several scenic resource areas. In particular the Bass River and Mullica River areas are amongst some of the most scenic portions of the roadway. Great lengths have been taken with regard to the design of the proposed project to maintain the visual compatibility of the proposed roadway improvements with the existing roadway conditions. Furthermore, the proposed project has been coordinated with SHPO to ensure that the roadway design incorporates several design criteria requirements in order to maintain the compatibility of existing and proposed roadway.

The view of the scenic areas located adjacent to the project corridor will not be compromised as the elevations of the existing and new bridges will remain the same allowing motorists to have visual access to waterfront areas that currently represent scenic vistas.

## **Traffic (N.J.A.C. 7:7E – 8.14)**

The proposed project will improve existing traffic conditions as detailed in the Traffic Impact Study submitted under separate cover.

## **4.3 COMPLIANCE STATEMENT FRESHWATER WETLANDS INDIVIDUAL PERMIT**

The proposed project will incur 4.465 acres of freshwater wetland impacts. In addition there will be an impact to .105 acres of open water, 0.154 acres of intertidal / subtidal shallows and 2.984 acres of tidal marsh. Please refer to Table 3-2 in Chapter 3 (Page 3-16) for the list of the wetland impacts in the project area. As mentioned throughout the report the proposed project will result in the disturbance to threatened and endangered species habitats. All supplemental reports and habitat assessments are included with this report for further information. During construction, all applicable soil erosion and sediment control features will be implemented in order to ensure that wetland and stream impacts are

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minimized. All construction activities will be completed in accordance with the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A – 7.2).

#### **4.3.1 STANDARD REQUIREMENTS FOR ALL INDIVIDUAL PERMITS**

Pursuant to the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-7.2(b)) the following Statewide Individual Permit standards shall be met:

1. A detailed alternatives analysis was performed for the proposed project. There is no practical alternative to the proposed project that will result in fewer disturbances to surrounding environmentally sensitive areas. The proposed alternative will result in the disturbance of 4.465 acres of State open waters, freshwater wetlands, emergent wetlands and scrub shrub wetlands. The alternatives that have been developed for the mainline widening between Interchange 30 and Interchange 80 are analyzed in Subchapter 2 in this report. In addition a full alternative analysis Report is included under separate cover. The alternative analysis discusses the elements of purpose and need for the project, including environmental impacts. In addition, socioeconomic and safety considerations, as well as construction costs were also considered to provide additional points of comparison for the alternatives. Adverse impacts to the stream banks and associated wetlands will be minimized through the implementation of soil erosion and sediment control measures and Best Management Practices. The areas will be protected to the maximum extent practicable.
2. The proposed alternative will result in a minimum area of overall disturbance and alteration to environmentally sensitive areas while still meeting the goals of the improvement project. The proposed alternative will not impair remaining wetlands, transition areas, or State Open Waters adjacent to the tributaries once the project is complete. With exception to the anticipated impacts specified above, the project will not significantly alter existing contours, vegetation, or wildlife resources associated with the wetlands adjacent to or beyond the limits of the project area. Lastly, the project has been designed to maintain the hydrologic circulation patterns of the HUC-11 in which the project areas are located.
3. According to the response letter from the NJDEP Natural Heritage Program (NHP), the project area contains numerous threatened and endangered plant and animal species. A detailed Threatened and Endangered Species Habitat Assessment and Impact Analysis has been prepared by Amy S. Greene Environmental, Dated May 2002. The reports are submitted under separate cover. The project disturbs a little over 68 acres of potential threatened or endangered species habitat and the disturbances are negligible in comparison to the remaining habitat within and surrounding the project area. Please refer to the detailed habitat assessment for further information on the project impacts to threatened and endangered species habitat.
4. The project area would be considered a critical wildlife habitat as defined in the Endangered Species Act of 1973 (33 U.S.C. 1401 et seq.). The project areas are located in wooded habitats located directly adjacent to the Garden State Parkway. In addition, the Natural Heritage Program and the habitat assessment prepared for the project area has listed numerous plant and animal species. As such, the streams and associated wetlands would be considered critical wildlife habitats. Disturbances to the wetlands and streams will be minimized to the greatest



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extent possible. Please refer to Chapter 3 in this report for information on the animal species documented onsite. In addition, the threatened and endangered species reports are included for further information on impacts to such species and minimization techniques that will be employed.

5. The proposed project will not contribute to a violation of the State Water Quality Standards. The final design of the proposed will meet the requirements of the Department's Phase II Regulations pertaining to stormwater management and water quality maintenance. Additional impervious surface will be created by the proposed improvements. Post development runoff rates will be limited to predevelopment rates through the use of a system of infiltration basins, perforated pipes, special structures and natural groundwater recharge, in accordance with Standard for Soil Erosion and Sediment Control in New Jersey prepared by the new Jersey State Soil Conservation Committee. Stormwater runoff during construction will be regulated in accordance with State approved standards deemed necessary by the Ocean Burlington and Atlantic County Soil Conservation Districts and the New Jersey Pinelands Commission. A Stormwater Management Plan has been submitted under separate cover with the stream encroachment permit application.
6. The proposed project will not contribute to a violation of any applicable toxic effluent standard or prohibition imposed pursuant to the Water Pollution Control Act.
7. The proposed project will not violate any requirement imposed by the US government to protect marine sanctuary. The subject site is not located in an area that is classified as a marine sanctuary.
8. During construction, all applicable soil erosion and sediment control features will be implemented in order to ensure that degradation of surface waters and groundwater is minimized. Once complete, surface soils subject to temporary disturbance will be seeded to prevent future erosion. All construction activities will be completed in accordance with the required Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-7.2).
9. The Preferred Alternative will have an adverse effect on cultural resources. There will be no adverse impact to sites listed on the National Register of Historic Places or archaeological resources. The State Historic Preservation Office (SHPO) has determined that the Garden State Parkway itself, due to its age and defining characteristics, is eligible for listing as a historic corridor. The Turnpike Authority is in the consultation process with the State Historic Preservation Office and will ultimately execute a Memorandum of Agreement with them for the project. A Cultural Resource Assessment prepared by Richard Grubb & Associates, Inc., dated April 2000, and an Archaeological Assessment prepared by Gannett Flaming, dated September 2002 are included with this report. For further information on the project disturbance please refer to the attached reports.
10. The proposed project will not result in a violation of the *Flood Hazard Area Control Act* (N.J.A.C. 7:13). A Minor Stream Encroachment Permit is being concurrently reviewed by the NJDEP and NJPC in order to address applicable regulations in the Act. As such, the Stream Encroachment application includes the final design plans for all work proposed in a delineated

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flood plain.

11. The proposed project is being designed to comply with all applicable Municipal, State, and Federal land use laws.
12. The residents living within the project area and people that travel the Garden State Parkway support this project in order to reduce traffic congestion during rush hour and weekends during summer months. The widening of the Parkway is necessary to accommodate the growth trends throughout the shore area and serve this vital public safety role. In addition, it is apparent that the Garden State Parkway be relied upon as the primary evacuation route for surrounding communities. The proposed improvements must be implemented to reduce the traffic congestion. Once complete, the project will improve and maintain water quality. The proposed project will not wholly, or in part, represent a project focused on private gain at the expense of the various townships, the residents, or the environment. The improvements to the parkway are being proposed in the interest of public health and safety.
13. With exception to temporary construction disturbances and minimal vegetation removal, the preferred alternative has been designed to minimize adverse impacts to the wetlands to the maximum extent practicable. Implementing the proposed improvements will not alter or otherwise significantly impact the function and value provided by the freshwater wetlands in the project area.
14. The proposed project will not result in a discharge of dredged material or a discharge of fill material. Any excess soil will be disposed of beyond the limits of wetlands, transition areas, or State Open Water.
15. The proposed project is being designed to comply with the Department's Phase II Stormwater Management and Water Quality Regulations. The best management practices for the treatment of the proposed runoff to meet the Water Quality criteria outlined by NJDEP and NJPC Regulations N.J.A.C. 7:13-2.8 and N.J.A.C. 7:50-6.84 respectively, is provided by several different mechanisms. Other measures include the implementation of a comprehensive soil erosion and sediment control plan to prevent or otherwise minimize the effects of erosion and sedimentation downstream and on the adjacent properties. Please refer to the section 4.3.3 below for further information on BMP's.

#### **4.3.2 ADDITIONAL REQUIREMENTS FOR A NON-WATER DEPENDANT ACTIVITY IN A WETLAND OR SPECIAL AQUATIC SITE**

In addition to meeting the requirements of N.J.A.C. 7:7A-7.2, a non-water dependant activity in a freshwater wetland is subject to the requirements of this section (N.J.A.C. 7:7A-7.4). Please note the following:

1. There is no practical alternative to completing the roadway widening project that would incur less environmental impact. A detailed Alternatives Analysis demonstrating this fact is provided above.
2. The goals of the project cannot be met using one or more sites in the general region that would avoid or reduce adverse impacts on adjoining wetlands. The preferred alternative will help

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reduce traffic flow while minimizing impacts to wetlands and state open waters to the maximum extent practicable.

3. Environmental impacts will primarily be limited to State open waters, freshwater wetlands and transition areas. Impacts to aquatic ecosystems associated with State Open Waters will be limited to bridge and culvert repairs and grading. Anticipated impacts will not, however, significantly impact the resource classification or function of the wetlands. Surface water flow will not be interrupted as a result of the proposed project.
4. The Alternatives Analysis presented in Chapter 2 pertaining to why the preferred alternative was selected over a number of other alternatives.
5. The proposed project is not subject to zoning, density, infrastructure, or parcel size requirements. As such, alternatives to the proposed project were not analyzed based on these criteria. Alternatives were selected/rejected based on accomplishing the goals of the project while limiting environmental degradation to the maximum extent possible.

#### **4.3.3 WATER QUALITY AND STORMWATER MANAGEMENT**

As stated above, a Stream Encroachment Permit is being concurrently reviewed to address the project compliance with the Flood Hazard Area control Act Rules (N.J.A.C. 7:13). The following information is included with the Stream Encroachment Permit application and is summarized below. As such, Water quality and Stormwater Management will be address by the following:

- The curb along the existing roadway sections will be removed where applicable. The runoff will be allowed to sheet-flow across the vegetated embankments.
- The percentage of paved surfaces to grass surfaces is balanced as closely as possible by removal of existing pavement to create a grass median area between the existing paved median. The proposed grass median will be approximately 2-miles in total length. The area spans from the approaches to and between the Bass River Bridge and the Mullica River Bridge. Runoff from paved surfaces will be allowed to sheet-flow along the vegetated median before discharging to the surrounding tidal areas.

The combination of the proposed grass median to reduce the amount of proposed paved areas, and the recharge swales and basins in the uplands, reduces the proposed peak runoff volume to comply with NJPC and NJDEP WQ and SWM criteria.

The roadway from Milepost 30.20 to Milepost 33.50 (approximately 3.30-miles), is also surrounded by Tidal Wetlands and is subject to tidal flooding. The area is tributary to the Patcong Creek watershed. Stormwater Management and Water Quality are achieved by recharging the increase in peak volume into the ground.

- A detention / recharge basin is proposed within the roadway median from Milepost 30.40 to Milepost 31.00.

The basin is divided into two separate areas. Sub-area A collects runoff from the roadway pavement from Milepost 30.70 to Milepost 31.00. Sub-area B collects runoff from the roadway pavement

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between Milepost 30.40 to Milepost 30.70. The proposed roadway section in this area will be curbed and inlets are proposed to convey the runoff into the basins within the roadway median. The basin routings account for tidal flooding for the 2-year, 10-year, and 100-year Tidal Surges. Based on the FIS study for Great Egg Harbor a rating curve was developed to establish the Stage Frequency Curve for the tidal flows. Please refer to the Stream Encroachment Permit Application that is being concurrently submitted for further information on the Stormwater Management.

The best management practices for the treatment of the proposed runoff to meet the Water Quality criteria outlined by NJDEP and NJPC Regulations N.J.A.C 7:13-2.8 and N.J.A.C 7:50-6.84 respectively, is provided by several different mechanisms. The Parkway widening project has incorporated the best water quality management techniques to minimize the discharge of pollutants to ground or surface waters by promoting sheet-flow from impervious areas, maintain on-site infiltration and simulate natural drainage patterns.

#### **Section Ten Compliance Statement (NJSA 13:19-10)**

- a) The proposed widening project conforms to all applicable air, water, and radiation emission and effluent standards as well as all applicable water quality criteria and air quality standards. During construction and operation, the project area will not produce harmful air emissions or effluents due to the fact that the construction is not associated with a source of such potential contaminants. Stormwater associated with the project will be conveyed to existing outfalls (which will be extended) where it will be handled in accordance with all applicable local, State, and Federal regulations governing the discharge of stormwater. The project has incorporated BMP's to meet the Regulatory Agency requirements. BMP's such as swales and retention basins will be constructed to meet stormwater recharge and water quality requirements.

In order to meet applicable water quality criteria all construction activities will take place during low tide where applicable and proper soil erosion and sediment control measures will be followed to prevent turbidity to the receiving water bodies. Soil erosion and sediment control methods will be utilized during the installation of the inlets and stormwater outfall. Such methods include but are not limited to inlet filters, sediment control fences, straw bale protection, and a crushed stone stabilized construction entrance. Prior to construction we will obtain from Ocean, Burlington and Atlantic County Soil Erosion and Sediment Control Plan Approvals.

- b) The proposed project will not produce air emissions and water effluents in excess of the existing dilution, assimilative, and recovery capacities of the air and water environments at the site and within the surrounding region. As noted above, the proposed project will not produce harmful air emissions or effluents during construction activities. The stormwater infrastructure system will not discharge liquid or solid waste to the environment within, or in close proximity to, the project corridor.
- c) Policies pertaining to the handling of litter and/or recyclable material are not applicable to the proposed widening project. The stormwater infrastructure system will not discharge liquid or solid waste to the environment within, or in close proximity to, the project corridor.
- d) The proposed project will not have any impact on the regenerative capacity of water supply

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aquifers or other ground or surface water supplies. In addition, the proposed project will not create an additional demand on shallow and deep subsurface aquifer systems as well placement is not included in the project scope. Additionally, the project will implement recharge basins and swales to meet the regulatory requirements for groundwater recharge.

The proposed project will interfere with local or regional plant and animals due to the proposed impacts from the widening. It is important to note that fish and human life processes within, or in close proximity to, the project area are not anticipated to be affected.

The NJTA has gone to great lengths to design the project around impacts to residents and aquatic species by minimizing impacts by designing to roadway improvements within the median where feasible. The majority of the widening will take place within areas that have been previously disturbed. Impacts to sensitive areas will be mitigated by the Authority in accordance with the regulatory agencies requirements. All construction activities will take place during low tide and proper soil erosion control and sediment control measures will be followed to prevent turbidity to the adjacent wetlands and State open waters.

The construction of the project will not involve impacts to fisheries habitats and/or spawning areas. Lastly, the installation of the stormwater infrastructure will be completed below existing grade of the surrounding land areas and as such, has been designed to not interfere with the day-to-day lives of residents or visitors to the region.

- e) The proposed project will not endanger human life or property. Nor will the project impair the public health, safety, or welfare of residents or visitors to the region. As stated above, the widening project will not produce potentially harmful air or radiation emissions or effluents. The system will not discharge liquid or solid waste to the environment within, or in close proximity to, the project corridor. All construction will be finalized and installed at or below existing grade of the surrounding land areas. The stormwater infrastructure system will not discharge liquid or solid waste to the environment within, or in close proximity to, the project corridor. As such, the project will not interfere with the day-to-day lives of residents or visitors to the region, nor will it pose a threat to private or public property.
- f) The proposed project will impact unique land types, historical or archaeological areas, and/or existing public scenic attributes within the project corridor. The NJTA has minimized impacts throughout the corridor and is in the process of negotiating mitigation of the impacts with the NJDEP and ACOE. Under the Section 106 process and SHPO regulatory review, the applicant has developed an alternatives analysis and is in the process of preparing a mitigation proposal to offset the impacts associated with the Historical nature of the roadway (GSP). As stated, the project will impact unique land types and some scenic attributes within the roadway corridor; however coordination with the regulatory agencies will minimize these disturbances and will result in coordinated approval with the ACOE, NJDEP and the NJPC.

APPENDIX A

NJDEP LURP APPLICATION FORM AND FEE  
CALCULATION

State of New Jersey  
Department of Environmental Protection  
Land Use Regulation Program Application Form (LURP #I)  
Land Use Regulation Program  
501 E. State Street P O Box 439  
Trenton, NJ 08625-0439

PLEASE PRINT OR TYPE THE FOLLOWING: (Complete all sections unless otherwise noted)

1. Applicant Name New Jersey Turnpike Authority  
Address 581 Main Street Phone 732-750-5300  
City Woodbridge State NJ Zip 07095
2. Agent Name Kristopher J. Krzyston, Assistant Division Manager Firm T & M Associates  
Address Eleven Tindall Road Phone (732) 671-6400  
City Middletown State NJ Zip 07748
3. Property Owner Name New Jersey Turnpike Authority  
Address 581 Main Street City Woodbridge State NJ Zip 07095
4. Project Name Garden State Parkway Mainline Widening Location (Street Address) Milepost 30 to 80  
Municipality See Page ES-2 in EIS County See Page ES-2 in EIS  
Block(s) N/A NJHA ROW Lot(s) N/A NJHA ROW

N.A.D. 1983 State Plane Coordinates N(y) See Attached List feet E(x) See Attached List feet

Nearest Waterway See Table 3-2 in EIS Watershed See Table 3-2 in EIS

5. Total Fees \$98,750.00 Project Cost \_\_\_\_\_ Check Number \_\_\_\_\_

Project Description: The applicant is proposing the mainline widening of the Garden State Parkway from milepost 30 to 80. This widening project includes an additional lane in each direction, the replacement of all bridges, culverts and the creation of a wetlands mitigation area. This is an application for a CAFRA Permit, Waterfront Development Permit, Stream Encroachment Permit, Coastal Wetlands Permit and Freshwater Wetlands Individual Permit.

**FOR OFFICIAL USE ONLY**

Program Interest # \_\_\_\_\_ Class Code \_\_\_\_\_ Activity # \_\_\_\_\_  
Type \_\_\_\_\_ Component Type \_\_\_\_\_ 20th Day \_\_\_\_\_ 90th \_\_\_\_\_  
Proposed activity \_\_\_\_\_ Fees \_\_\_\_\_

Date Received / / PRO \_\_\_\_\_ Pts \_\_\_\_\_ Project Eng \_\_\_\_\_ Pts \_\_\_\_\_

Alternate PI \_\_\_\_\_ ASU \_\_\_\_\_ ASU Date / /

Program Interest # \_\_\_\_\_ Class Code \_\_\_\_\_ Activity # \_\_\_\_\_

Type \_\_\_\_\_ Component Type \_\_\_\_\_ 20th Day \_\_\_\_\_ 90th Day \_\_\_\_\_

Proposed activity \_\_\_\_\_ Fees \_\_\_\_\_ Pts \_\_\_\_\_

Revised 6/22/2005

6. Application(s) for: (Please check all that apply)

<b>Stream Encroachment:</b>	Permit	<u>XXXX</u>	Waiver	_____
<b>CAFRA:</b>	Individual Permit	<u>XXXX</u>	General Permit	_____
	Exemption Request	_____	Permit by Rule	_____
<b>Freshwater Wetlands:</b>	Individual Permit	<u>XXXX</u>	General Permit	_____
	Transition Area Waiver	_____	Letter of Interpretation	_____
	Exemption Request	_____	Open Water Fill Permit	_____
<b>Waterfront Development:</b>	Residential	_____	Commercial	<u>XXXX</u>
<b>Upland Waterfront Development:</b>	Residential	_____	Commercial	_____
<b>Water Quality Certificate</b>	<u>XXXX</u>	_____	Tidal Wetlands (1970)	_____
<b>Federal Consistency Determination</b>	_____	_____	Jurisdictional Determination	_____
<b>Highlands</b>	Highlands Resource Area Determination	_____	Highlands Preservation Area Approval (HPAA)	_____
	HPAA with Waiver	_____	HPAA Emergency	_____
	Highlands Pre-Application	_____		_____
<b>Permit Modification (specify)</b> _____				
<b>Other (specify)</b> _____				

7. Indicate below all Federal, State, County and Municipal approvals, denials or certifications received for the project site or are required for the proposed project: \*In Column A, indicate application status: (*P for* - pending, *A for* - approved, *D for* - denied, *T for* - to be applied for, or *O for* - other (explain other). \*In Column B, indicate application, permit, or docket number.

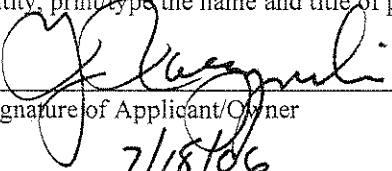
	A	B		A	B
CAFRA Permit	P	This Appl.	Stream Encroachment Permit	P	This Appl.
CAFRA Exemption			Stream Encroachment Waiver		
Waterfront Development Permit	P	This Appl.	Water Quality Certificate		
Tidal Wetlands (1970) Permit			Tidelands (Riparian) Conveyance		
Statewide General FWW Permit	P	This Appl.	Dam Safety Permit		
Freshwater Wetlands LOI			Pinelands Certificate of Filing		
Freshwater Wetlands Transition Area Waiver			D & R Canal Commission Certificate		
Freshwater Individual Permit			Federal Permits (Specify) ACOE	P	Submitted concurrently
Freshwater Wetlands Exemption			State Permits (Specify) Pinelands	P	Submitted concurrently
Permit Modification (specify # & type)			Municipal (Specify)		
Highlands Resource Area Determination			Highlands Applicability & WQMP Consistency Determination		



Both the Applicant and Property owner's section must be filled out for all Land Use Regulation Applications.

**APPLICANT SIGNATURE**

I certify under penalty of law that the information provided in this document is true and accurate. I am aware that there are significant civil and criminal penalties for submitting false or inaccurate information. (If corporate entity, print/type the name and title of person signing on behalf of the corporate entity.)

  
\_\_\_\_\_  
Signature of Applicant/Owner

\_\_\_\_\_  
Date  
**Richard Raczynski, P.E., Chief Engineer**  
\_\_\_\_\_  
Print Name

New Jersey Turnpike Authority, Woodbridge, NJ 07095  
\_\_\_\_\_  
Print Address P.O. Box 5042

\_\_\_\_\_  
Signature of Applicant/Owner

\_\_\_\_\_  
Date  
\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Address

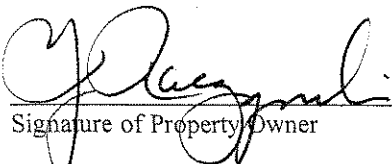
**A. PROPERTY OWNER'S CERTIFICATION**

I hereby certify that the undersigned is the owner of the property upon which the proposed work is to done. This endorsement is certification that the owner grants permission for the conduct of the proposed activity. In addition, I hereby give unconditional written consent to allow access to the site by representatives or agents of the Department for the purpose of conducting a site inspection or survey of the project site.

In addition, the undersigned property owner hereby certifies:

1. Whether any work is to be done within an easement – Yes \_\_\_\_ No X
2. Whether any part of the entire project (e.g., pipeline, roadway, cable, transmission line, structure, etc.) will be located within property belonging to the State of New Jersey –  
Yes X No \_\_\_\_ - Garden State Parkway
3. Whether any work is to be done on any property owned by a public agency that would be encumbered by Green Acres – Yes \_\_\_\_ No X
4. Whether any part of this project requires a Section 106 (National Register of Historic Places) Determination as part of a Federal permit or approval – Yes \_\_\_\_ No X

7/18/06  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Signature of Property Owner  
**Richard Raczynski, P.E. Chief Engineer**  
\_\_\_\_\_  
Print Name

New Jersey Turnpike Authority, Woodbridge, NJ 07095  
\_\_\_\_\_  
Print Address P.O. Box 5042

**B. APPLICANT'S AGENT**

NOTE: Notary seal is required for Flood Hazard Area (SEA) applications.

I Richard Raczynski, P.E., Chief Engineer the  
Applicant/Owner, authorize to act as my agent/representative in all matters pertaining to my application the following  
person:

Name Kristopher J. Krzyston, CEM, CEI

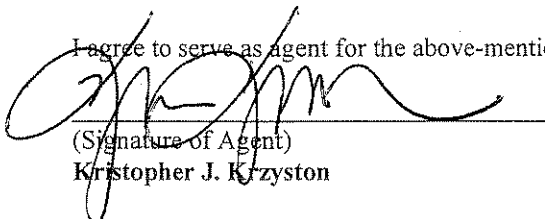
Occupation/Profession Assistant Division Manager, T&M Associates

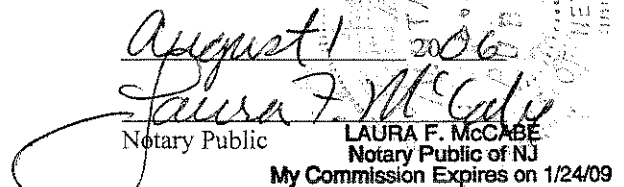
  
(Signature of Applicant/Owner)

**AGENT'S CERTIFICATION**

Sworn before me this day of

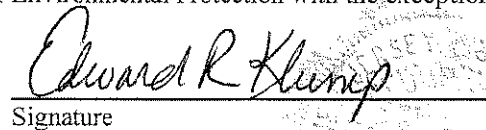
I agree to serve as agent for the above-mentioned applicant

  
(Signature of Agent)  
Kristopher J. Krzyston

August 1 2006  
  
Notary Public  
LAURA F. MCCABE  
Notary Public of NJ  
My Commission Expires on 1/24/09

**C. STATEMENT OF PREPARER OF PLANS, SPECIFICATIONS, SURVEYOR'S OR ENGINEER'S REPORT**

I hereby certify that the plans, specifications and engineer's report, if any, applicable to this project comply with the current rules and regulations of the New Jersey Department of Environmental Protection with the exceptions as noted.

  
Signature

Edward R. Klump, P.E.

Type name and date

Vice President/Project Manager T&M Associates

Position, name of firm

## FEE CALCULATION

**1. Coastal (Tidal) Wetlands Permit:**

6.3 (N/S Total) Lane Miles at a Cost of \$1,026,294.00 / Mile = \$6,465,652.20  
Total Construction Cost 6.3 Miles (\$6,465,652.20) X .01% \$64,656.52  
Plus \$500.00 = \$65,156.52

*\*\* Bridge Costs (Bass/Mullica/Patcong) are included in the CAFRA and Waterfront Development Construction Costs and are not subject to the Wetlands Act of 1970 Legislation as they are deemed State Open Waters*

**2. CAFRA Permit:**

Construction Cost of Roadway is \$500,000,000.00\*  
\$11,400 + 1% of Construction Costs above \$350,000  
The fee cannot exceed \$30,000 \$30,000.00

*\*This fee represents, construction costs, design costs and construction oversight costs and is not representative of the construction costs alone for the entire 30-80 GSP Widening*

**3. Waterfront Development Permit:**

Calculated Construction Cost of In-Water development is \$1,295,000.00  
\$11,400 + 1% of Construction Costs above \$350,000  
The Fee cannot exceed \$30,000 \$30,000.00

**4. Stream Encroachment Permit:**

59 Minor Elements X \$1,000.00 per minor element = \$59,000.00  
Stormwater Review Fee Incl. CI Designation Fee = \$16,000.00  
(Maximum Fee = \$16,000.00)  
**Total Stream Encroachment Fee** \$75,000.00

**5. Freshwater Wetland Individual Permit:** 14 acres of Impact

\$2,000 + \$200 per 1/10<sup>th</sup> acre of disturbance 140 (10<sup>th</sup>'s) x \$200 + 2,000 = **Waived**  
The New Jersey Turnpike is a State Agency

**6. Multiple Permit Fee Calculation:** Single Highest Fee Plus 75% of the remaining fees:

\$75,000.00 + 75%(\$125,156.52) = \$168,867.39 - \$98,750.00 (previously paid) = \$70,117.39

**Total Application Fees:** \$ 168,867.39  
**Minus (previously paid 8/7/06) \$** 98,750.00 **Check #019985**  
**Difference** \$ 70,117.39

State Plane Coordinates (NAD 1983) Mile Marker 80-30	
Start: Mile post marker 80 moving South every 1,00 feet	
<b>Easting Coordinates</b>	<b>Northing Coordinates</b>
574,287.67 E	411,886.72 N
574,352.57 E	410,913.28 N
574,385.01 E	409,550.46 N
574,352.57 E	408,349.87 N
574,287.67 E	407,538.67 N
574,060.53 E	406,500.33 N
573,930.74 E	405,526.88 N
573,865.84 E	404,520.99 N
573,768.50 E	403,547.54 N
573,736.05 E	402,574.10 N
573,898.29 E	401,568.20 N
573,898.29 E	400,335.17 N
573,930.74 E	399,167.04 N
573,833.40 E	398,193.59 N
573,573.81 E	397,220.14 N
573,703.60 E	397,122.80 N
573,573.81 E	396,246.70 N
573,346.67 E	395,338.15 N
573,022.19 E	394,332.26 N
573,216.88 E	393,326.36 N
572,892.40 E	392,320.47 N
572,957.29 E	391,509.26 N
573,119.54 E	390,503.37 N
573,054.64 E	389,497.48 N
572,859.95 E	388,361.79 N
572,957.29 E	387,323.45 N
572,957.29 E	386,285.11 N
572,730.16 E	385,246.76 N
572,859.95 E	384,143.53 N
572,697.71 E	383,202.53 N
572,827.50 E	382,131.74 N
572,665.26 E	380,768.91 N
572,438.12 E	379,665.68 N
572,081.19 E	378,529.99 N
571,724.26 E	377,556.54 N
571,399.78 E	376,485.75 N
570,977.96 E	375,577.20 N
570,621.03 E	374,571.31 N
570,134.30 E	373,597.86 N
569,907.17 E	372,559.52 N
569,809.82 E	371,294.04 N
569,777.37 E	370,190.80 N

569,842.27 E	369,217.36 N
569,939.61 E	368,211.47 N
569,744.92 E	367,238.02 N
569,550.24 E	366,199.68 N
569,387.99 E	365,161.34 N
569,128.41 E	364,122.99 N
568,706.58 E	362,143.65 N
568,479.44 E	361,072.86 N
568,414.55 E	360,002.07 N
568,284.76 E	358,801.49 N
567,798.03 E	356,595.01 N
567,603.34 E	355,589.12 N
567,570.90 E	354,128.95 N
568,889.48 E	351,760.23 N
566,240.52 E	350,429.86 N
565,786.25 E	349,099.48 N
565,202.18 E	348,223.38 N
564,553.21 E	345,952.01 N
564,261.18 E	344,556.74 N
563,936.70 E	343,453.50 N
563,709.56 E	341,928.43 N
563,190.39 E	340,662.96 N
562,736.12 E	339,397.48 N
562,541.43 E	338,359.13 N
562,476.53 E	337,158.55 N
562,152.05 E	335,633.49 N
561,632.88 E	334,757.39 N
561,275.95 E	333,719.04 N
560,983.91 E	332,745.60 N
560,626.98 E	331,804.60 N
560,237.61 E	330,733.81 N
559,815.78 E	329,760.36 N
559,264.16 E	328,851.82 N
558,712.54 E	327,878.37 N
558,193.37 E	326,807.58 N
557,706.65 E	325,866.58 N
557,317.27 E	324,828.24 N
556,798.10 E	323,919.69 N
556,084.24 E	323,108.49 N
555,435.27 E	322,297.28 N
554,786.31 E	321,129.15 N
554,104.90 E	320,350.39 N
553,488.38 E	319,247.15 N
552,774.52 E	318,338.60 N
552,255.35 E	317,365.16 N

551,703.73 E	316,456.61 N
551,022.32 E	315,710.30 N
550,276.01 E	314,834.20 N
549,724.39 E	313,860.75 N
548,783.40 E	312,497.93 N
548,296.67 E	311,589.38 N
547,907.29 E	310,648.38 N
547,517.92 E	309,610.04 N
547,031.19 E	308,669.04 N
546,317.33 E	307,728.05 N
545,603.47 E	306,981.74 N
544,986.96 E	306,170.53 N
544,402.89 E	305,294.43 N
543,883.72 E	304,288.54 N
543,624.13 E	303,672.02 N
542,812.93 E	302,925.71 N
542,001.72 E	302,244.30 N
541,158.07 E	301,692.68 N
539,438.32 E	300,557.00 N
538,594.67 E	300,005.38 N
537,621.22 E	299,486.21 N
536,647.77 E	299,096.83 N
535,706.78 E	298,642.55 N
534,733.33 E	298,123.38 N
533,889.68 E	297,279.73 N
532,981.13 E	296,500.97 N
532,072.58 E	295,852.01 N
530,807.10 E	295,300.39 N
529,866.10 E	294,586.53 N
529,249.59 E	293,775.33 N
528,405.93 E	293,061.47 N
527,562.28 E	292,412.50 N
526,621.28 E	291,958.23 N
525,680.29 E	291,374.16 N
524,836.63 E	290,790.09 N
523,928.08 E	290,043.78 N
523,116.88 E	289,427.27 N
522,208.33 E	288,810.75 N
521,786.50 E	588,486.27 N
520,877.96 E	287,999.55 N
519,872.06 E	287,350.58 N
518,931.06 E	286,701.62 N
517,957.62 E	286,312.24 N
517,016.62 E	285,825.52 N
516,043.18 E	285,501.04 N

515,167.07 E	284,949.42 N
514,128.73 E	284,560.04 N
513,317.53 E	283,943.53 N
512,473.88 E	283,294.56 N
511,727.57 E	282,727.57 N
511,143.50 E	281,672.15 N
510,429.64 E	280,925.84 N
509,878.02 E	280,082.19 N
509,488.64 E	279,076.30 N
508,742.33 E	278,005.51 N
508,255.61 E	276,999.61 N
507,444.41 E	276,188.41 N
506,730.55 E	275,279.86 N
506,049.13 E	274,436.21 N
505,335.27 E	273,689.90 N
504,426.72 E	272,813.80 N
504,199.59 E	271,743.01 N
503,875.11 E	270,704.67 N
503,842.66 E	269,568.98 N
503,615.52 E	268,563.08 N
503,745.31 E	267,492.29 N
503,777.76 E	266,486.40 N
503,810.21 E	265,448.06 N
503,453.28 E	264,409.72 N
503,096.35 E	263,468.72 N
502,382.49 E	262,689.96 N
502,025.56 E	261,684.07 N
501,733.53 E	260,710.62 N
501,279.25 E	259,704.73 N
500,695.18 E	258,763.73 N
499,851.53 E	258,082.32 N
498,780.74 E	257,725.39 N
497,774.85 E	257,563.15 N
498,521.15 E	257,790.29 N
497,482.81 E	257,400.91 N
496,476.92 E	257,173.77 N
495,535.92 E	256,589.70 N
494,627.37 E	256,102.98 N
494,075.75 E	255,259.33 N
493,232.10 E	253,377.33 N
491,155.42 E	252,728.37 N
490,279.32 E	252,144.30 N
489,338.32 E	251,592.68 N
488,397.32 E	251,041.06 N
487,683.46 E	250,294.76 N

487,196.74 E	249,386.21 N
486,839.81 E	248,412.76 N
486,710.01 E	247,341.97 N
486,677.57 E	246,271.18 N
486,645.12 E	245,200.39 N
486,904.70 E	244,194.50 N
487,034.50 E	243,156.15 N
487,261.63 E	242,117.81 N
487,326.53 E	240,462.96 N
487,099.39 E	239,457.06 N
486,710.01 E	238,483.62 N
486,255.74 E	237,575.07 N
485,704.12 E	236,666.52 N
485,217.40 E	235,790.42 N
484,698.23 E	234,816.97 N
484,471.09 E	233,811.08 N
484,179.06 E	232,805.18 N
483,887.02 E	231,766.84 N
483,465.20 E	230,760.95 N
483,302.96 E	229,755.05 N
482,751.34 E	228,878.95 N
482,524.20 E	227,840.61 N
482,232.17 E	226,769.82 N
481,940.13 E	225,569.24 N
481,680.55 E	224,790.48 N
481,388.51 E	223,784.59 N
481,096.48 E	222,811.14 N
481,128.93 E	221,740.35 N
480,804.44 E	220,669.56 N
480,934.24 E	219,501.00 N
480,674.65 E	218,527.81 N
480,317.72 E	217,457.19 N
479,928.34 E	216,516.19 N
479,376.72 E	215,575.20 N
478,760.21 E	214,601.75 N
478,241.04 E	213,660.75 N
477,786.76 E	212,687.31 N
477,170.25 E	211,778.76 N
476,748.42 E	210,675.52 N
476,423.94 E	209,669.63 N
476,196.80 E	208,533.94 N
475,969.67 E	207,463.15 N
475,353.15 E	206,522.15 N
474,866.43 E	205,646.05 N
474,282.36 E	204,737.50 N



473,860.53 E	203,828.95 N
473,146.67 E	203,115.09 N
472,497.71 E	202,271.44 N
471,556.71 E	201,557.58 N
470,875.30 E	200,713.93 N
470,291.23 E	199,805.38 N
469,674.72 E	198,864.38 N
470,096.54 E	199,383.55 N
469,609.82 E	198,475.00 N
469,058.20 E	197,631.35 N
468,539.03 E	196,025.46 N
468,311.89 E	195,587.11 N
468,052.31 E	194,483.87 N
467,435.79 E	192,893.91 N
467,630.48 E	193,023.71 N
467,046.41 E	192,147.61 N
466,462.35 E	191,303.95 N
465,748.49 E	190,492.75 N
465,131.97 E	189,681.54 N
464,710.14 E	188,772.99 N
464,385.66 E	187,799.55 N
463,931.39 E	186,826.10 N
463,509.56 E	185,917.55 N
462,860.60 E	185,073.90 N
462,276.53 E	184,068.01 N
461,887.15 E	183,127.01 N
461,497.77 E	182,153.56 N
461,011.05 E	181,245.01 N
460,491.88 E	180,531.15 N
460,037.61 E	179,590.16 N
459,226.40 E	178,876.30 N
458,544.99 E	177,902.85 N
458,220.51 E	177,188.99 N
457,896.03 E	176,058.75 N
457,993.39 E	175,014.96 N
458,350.30 E	173,911.72 N
END-Mile Marker 30	

APPENDIX B

SWAMP PINK AND BOG TURTLE LETTER



## Swamp Pink and Bog Turtle Statement

The proposed project runs through the following towns which are on the list of municipalities with swamp pink and bog turtles:

Bog Turtles:

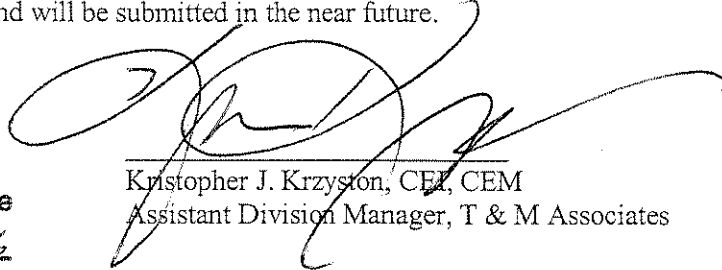
Burlington County, Bass River Township  
Ocean County, Berkeley Township

Swamp Pink:

Ocean County, Barnegat Township, Stafford Township, Lacey Township, Little Egg Harbor Township  
Atlantic County, Egg Harbor Township

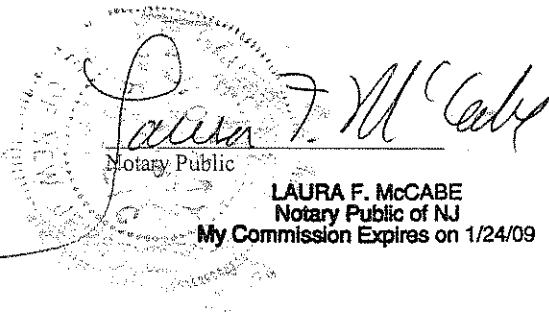
KRISTOPHER J. KRZYSTON, being duly sworn, deposes and says:

1. I am an Assistant Division Manager of the Environmental Science Division at T & M Associates, Inc., an environmental and engineering consulting firm based in Middletown, New Jersey.
2. I have inspected the existing and proposed right-of-way expansion and extension for the Garden State Parkway Widening from interchange 30 to 80, and specifically, the areas of proposed regulated activities as shown on the submitted site plan.
3. The proposed regulated activities will not result in any direct or indirect adverse impacts to Swamp Pink (*Helonias bullata*) or Bog Turtles. However, impact to swamp pink habitat may occur as a portion of this project. These impacts are being coordinated with New Jersey Division of Fish, Game and Wildlife. Additionally, representatives of Amy S. Greene Environmental Consultants will be present during construction. A detailed threatened and endangered species analysis has been conducted for the entire project area and the report is included in the Individual Permit application.
4. A detailed swamp pink survey is being prepared by Amy S. Greene Environmental Consultants and will be submitted in the near future.



Kristopher J. Krzyston, CEA, CEM  
Assistant Division Manager, T & M Associates

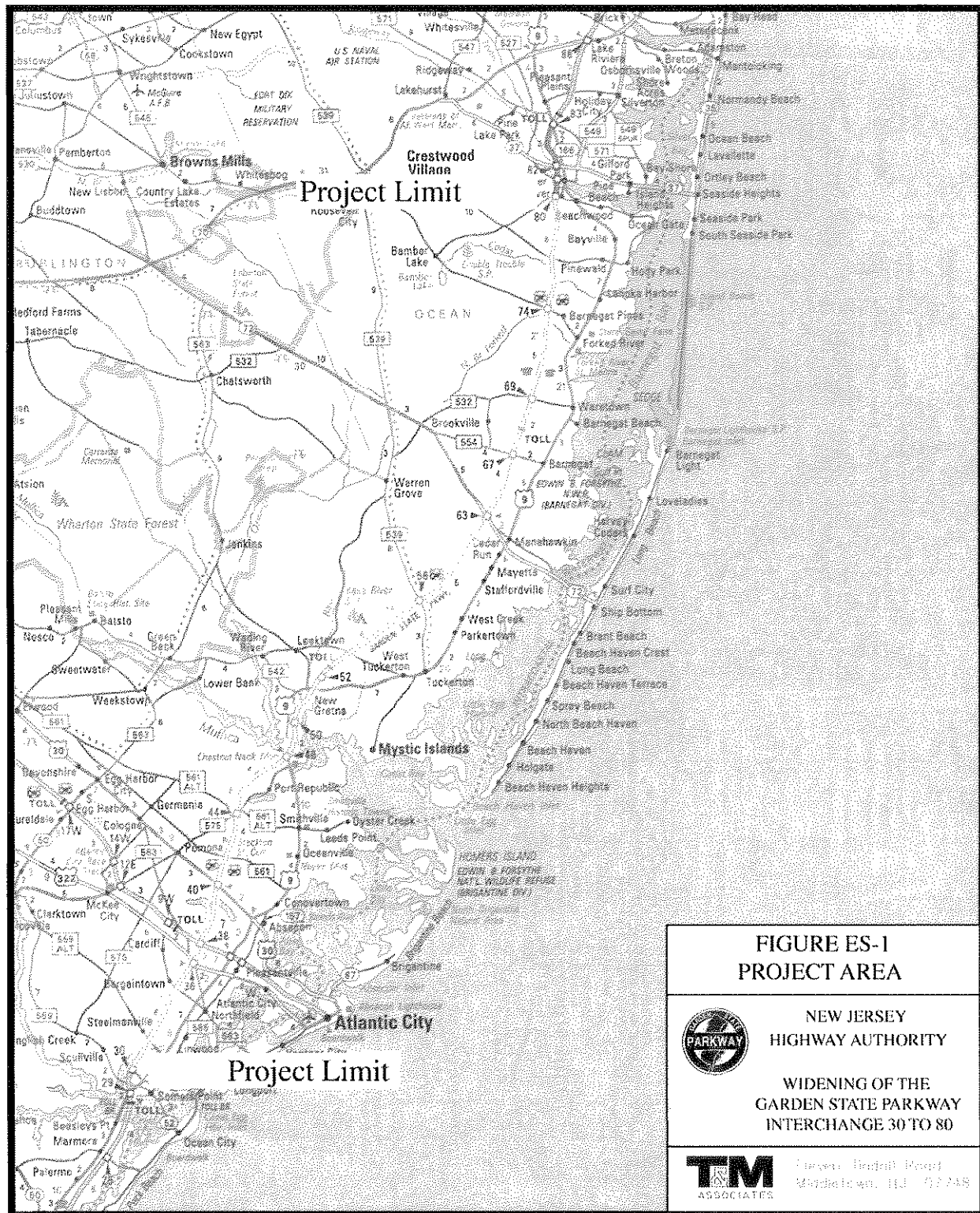
Sworn to and Subscribed before me  
this 2nd day of August 2006



Notary Public  
LAURA F. McCABE  
Notary Public of NJ  
My Commission Expires on 1/24/09

APPENDIX C

SITE LOCATION MAP





ELEVEN TINDALL ROAD  
MIDDLETOWN, NEW JERSEY 07748  
PHONE:(732) 671-6400 FAX (732) 671-7365

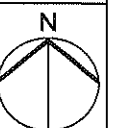
## USGS TOPOGRAPHIC MAP

GARDEN STATE PARKWAY MAINLINE WIDENING  
MILEPOST 80 TO 30  
COUNTIES OF OCEAN, BURLINGTON AND ATLANTIC



SCALE IN FEET

SOURCE: USGS – TOMS RIVER AND FORKED RIVER - NJ QUADRANGLE



JULY 2006

NJTP-00180

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ELEVEN TINDALL ROAD  
MIDDLETOWN, NEW JERSEY 07748  
PHONE:(732) 671-6400 FAX (732) 671-7365

## USGS TOPOGRAPHIC MAP

GARDEN STATE PARKWAY MAINLINE WIDENING  
MILEPOST 80 TO 30  
COUNTIES OF OCEAN, BURLINGTON AND ATLANTIC



SOURCE: USGS – FORKED RIVER, SHIP BOTTOM AND WEST CREEK- NJ QUADRANGLE



SCALE IN FEET

JULY 2006

NJTP-00180

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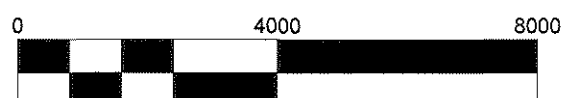




**ELEVEN TINDALL ROAD  
MIDDLETOWN, NEW JERSEY 07748  
PHONE:(732) 671-6400 FAX (732) 671-7365**

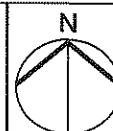
## USGS TOPOGRAPHIC MAP

**GARDEN STATE PARKWAY MAINLINE WIDENING  
MILEPOST 80 TO 30  
COUNTIES OF OCEAN, BURLINGTON AND ATLANTIC**



SCALE IN FEET

SOURCE: USGS – NEW GRETNA, TUCKERTON AND WEST CREEK - NJ QUADRANGLE



JULY 2006

NJTP-00180

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ELEVEN TINDALL ROAD  
MIDDLETOWN, NEW JERSEY 07748  
PHONE:(732) 671-6400 FAX (732) 671-7365

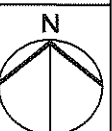
## USGS TOPOGRAPHIC MAP

GARDEN STATE PARKWAY MAINLINE WIDENING  
MILEPOST 80 TO 30  
COUNTIES OF OCEAN, BURLINGTON AND ATLANTIC



SCALE IN FEET

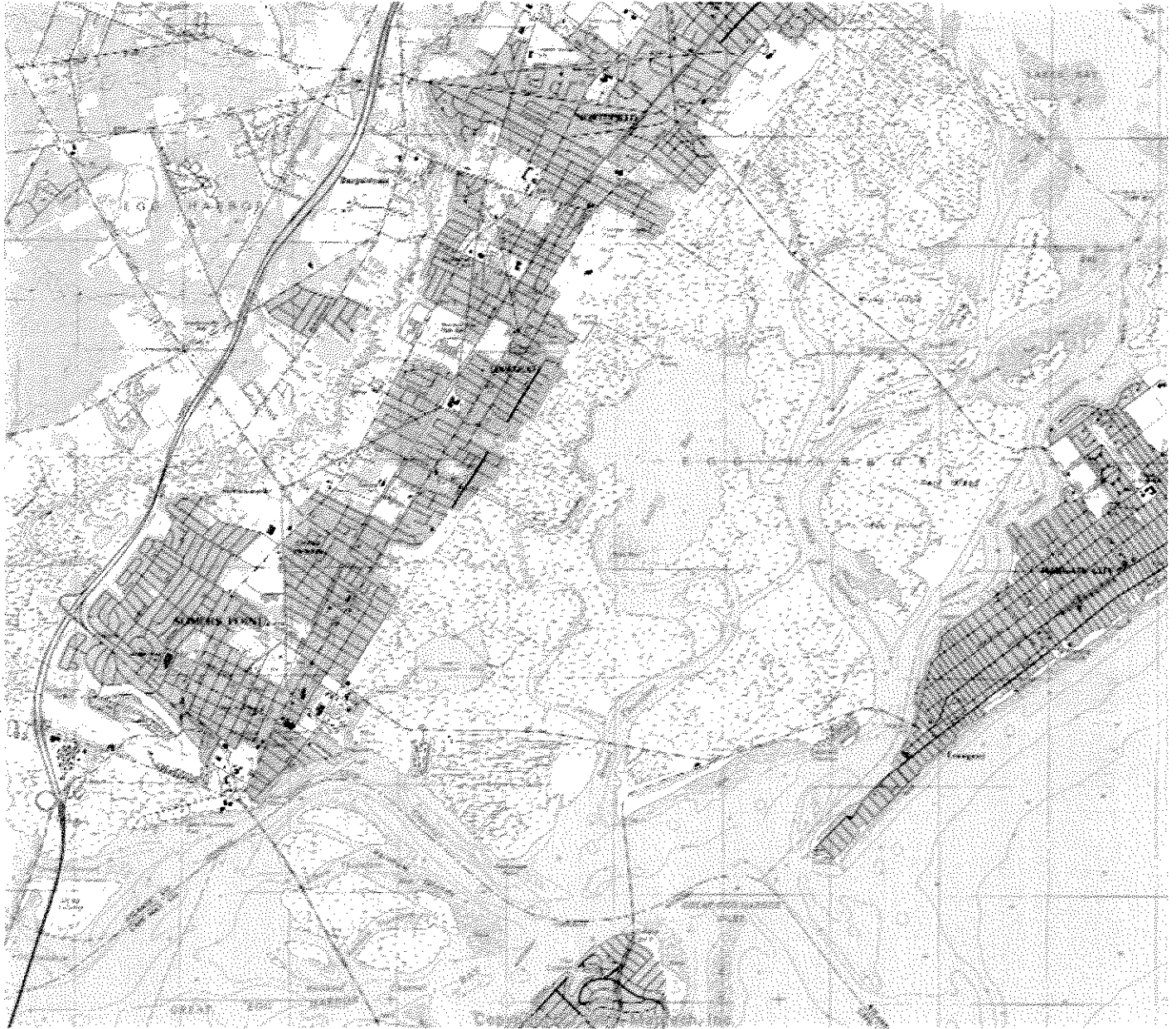
SOURCE: USGS – NEW GRETNA, GREEN BANK, OCEANVILLE AND PLEASANTVILLE - NJ  
QUADRANGLE



JULY 2006

NJTP-00180

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ELEVEN TINDALL ROAD  
 MIDDLETOWN, NEW JERSEY 07748  
 PHONE:(732) 671-6400 FAX (732) 671-7365

## USGS TOPOGRAPHIC MAP

**GARDEN STATE PARKWAY MAINLINE WIDENING  
 MILEPOST 80 TO 30  
 COUNTIES OF OCEAN, BURLINGTON AND ATLANTIC**



SCALE IN FEET

SOURCE: USGS – OCEAN CITY- NJ QUADRANGLE



JULY 2006

NJTP-00180

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 City5.vsd

APPENDIX E


SOIL DATA SHEETS & COLOR  
PHOTOGRAPHS



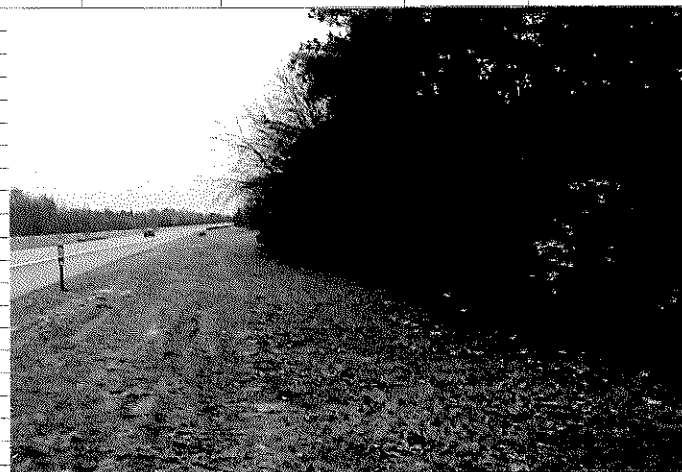



Station: MP No. 52.8		Complex SW-E		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 2 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
2. SAPLINGS/SHRUBS				Indicators:	Primary		Secondary	
none					Inundated	<input type="checkbox"/>	Oxidized Root Channels	<input type="checkbox"/>
					Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	<input type="checkbox"/>
					Water Marks	<input type="checkbox"/>	Local Soil Survey	<input type="checkbox"/>
3. VINES					Drift Lines	<input type="checkbox"/>	FAC Neutral Test	<input type="checkbox"/>
none					Sediment Deposits	<input type="checkbox"/>	Other	<input type="checkbox"/>
					Drainage Pattern	<input type="checkbox"/>		
4. HERBACEOUS				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.2: View looking south along Complex SW-E (MP52.8)				
<b>Community Type:</b>								
<input type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	7.5YR4/1	N/A	N/A	DUFF				
2-8	7.5YR 5/8	7.5YR6/8	MANY/DIST	SANDY LOAM				
8-14	7.5YR6/8	N/A	N/A	SANDY LOAM				
14-25	7.5YR6/8	10YR7/1	MANY/DIST	SANDY LOAM				
Soil Unit as Mapped (7): DoA (Downer loamy sand, 0-2% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 52.4		Complex SW-G		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>		
BORING NO. 3 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator	Cover	Depth to free water in pit: 4		Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 4		Inches			
Acer rubrum		FAC	4	Depth of Surface Water: N/A		Inches			
Quercus palustris		FACW	4	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
Pinus rigida		UPL	2	Indicators:		<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern			
				<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other					
<b>2. SAPLINGS/SHRUBS</b>									
Chamaecyparis thyoides		OBL	3						
Clethra alnifolia		FAC	5						
Pinus rigida		UPL	1						
				<b>SUMMARY</b>					
<b>3. VINES</b>				VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present					
NONE				SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present					
<b>4. HERBACEOUS</b>				HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present					
NONE									
Percent of Dominant Species that are OBL, FACW or FAC:				66%					
Community Type:				DETERMINATION:					
<input checked="" type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input type="checkbox"/> UPL				PHOTOGRAPH: No.3: View looking west along Complex SW-G (MP52.4)					
Classification (4):									
<input checked="" type="checkbox"/> Hydrophytic <input type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
DEPTH	MATRIX	MOTTILING COLORS	MOTTILING						TEXTURE (6)
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-1	7.5YR4/1	N/A	N/A						DUFF
1-8.5	10YR4/1	N/A	N/A						SANDY LOAM
8.5-11	10YR7/2	10YR7/1	MANY/DIST						SANDY LOAM
11-23	10YR7/1	N/A	N/A						SANDY LOAM
Soil Unit as Mapped (7): <b>KnA</b> (Klej sand, loamy substratum, 0-2% slopes)									
Soil Classification as Mapped (8): <input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric									
Soil Classification as Sampled (9): <input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric									

Station: MP No. 52.4 BORING NO. 4 UPL		Complex SW-G		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
2. SAPLINGS/SHRUBS						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES								
none								
4. HERBACEOUS								
LAWN		N/L	5					
Percent of Dominant Species that are OBL, FACW or FAC:				0%	<b>SUMMARY</b> VEGETATION: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present SOILS: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present HYDROLOGY: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present			
Community Type:				<b>DETERMINATION:</b> PHOTOGRAPH: No. 4: View looking south along Complex SW-G (MP52.4)				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL								
Classification (4):								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTILING COLORS	MOTTILING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-3	10YR4/2	N/A	N/A	DUFF				
3-11	7.5YR5/8	7.5YR6/8	MANY/DIST	SANDY LOAM				
11-20	7.5YR6/8	N/A	N/A	SANDY LOAM				
20-24	7.5YR6/8	10YR7/2	MANY/DIST	SANDY LOAM				
Soil Unit as Mapped (7): K <sub>NA</sub> (Kle) sand, loamy substratum, 0-2% slopes)								
Soil Classification as Mapped (8):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				




Station: MP No. 50.9 BORING NO. 5 WET		Complex SW-J		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>		
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator	Cover	Depth to free water in pit: 13		Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 2		Inches			
Acer rubrum		FAC	5	Depth of Surface Water: N/A		Inches			
				Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern			
						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other			
<b>2. SAPLINGS/SHRUBS</b>									
Phragmites australis		FACW	3						
<b>3. VINES</b>									
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>					
Smilax rotundifolia		FACW	3	VEGETATION:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present	
Juncus effusus		FACW	2	SOILS:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present	
				HYDROLOGY:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				100%					
<b>Community Type:</b>				<b>DETERMINATION:</b>					
<input checked="" type="checkbox"/> PFO1 <input checked="" type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input type="checkbox"/> UPL				PHOTOGRAPH: No.5: View looking west along Complex SW-J (MP50.9)					
<b>Classification (4):</b>									
<input checked="" type="checkbox"/> Hydrophytic <input type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>						<b>TEXTURE (6)</b>
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-3	10YR4/3	N/A	N/A	DUFF					
3-10	10YR4/1	10YR4/3	COMM/DIST	SANDY LOAM					
10-15	10YR4/1	10YR6/1	COMM/DIST	SANDY LOAM					
15-23	10YR6/1	10YR6/8	COMM/DIST	SANDY CLAY LOAM					
Soil Unit as Mapped (7): <b>WkA</b> (Woodstown loamy sand, 0-2% slopes)									
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric						
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric						



Station: MP No. 50.9		Complex SW-J		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 6 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
2. SAPLINGS/SHRUBS				<input type="checkbox"/>	Inundated		<input type="checkbox"/>	Oxidized Root Channels
none				<input type="checkbox"/>	Saturated w/in upper 12"		<input type="checkbox"/>	Water Stained
				<input type="checkbox"/>	Water Marks		<input type="checkbox"/>	Local Soil Survey
				<input type="checkbox"/>	Drift Lines		<input type="checkbox"/>	FAC Neutral Test
3. VINES				<input type="checkbox"/>	Sediment Deposits		<input type="checkbox"/>	Other
none				<input type="checkbox"/>	Drainage Pattern			
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present		<input checked="" type="checkbox"/> Not Present	
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present		<input checked="" type="checkbox"/> Not Present	
				HYDROLOGY:	<input type="checkbox"/> Present		<input checked="" type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				DETERMINATION:				
<input type="checkbox"/>	PFO1				PHOTOGRAPH: No.6: View looking south along Complex SW-J (MP50.9)			
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
Classification (4):								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-5	10YR6/4	N/A	N/A	DUFF				
5-10	10YR6/4	N/A	N/A	SANDY LOAM				
10-16	10YR6/4	7.5YR5/8	MANY/DIST	SANDY LOAM				
16-26	7.5YR5/8	10YR6/4	FEW/DIST	SANDY LOAM				
Soil Unit as Mapped (7): WkA (Woodstown loamy sand, 0-2% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 47.1 BORING NO. 7 WET		Complex SW-O		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>		
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator	Cover	Depth to free water in pit: 10	Inches				
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 3	Inches				
Acer rubrum		FAC	4	Depth of Surface Water: N/A	Inches				
Pinus rigida		FACU	2	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>				
				Indicators:	Primary	Secondary			
					<input type="checkbox"/> Inundated	<input type="checkbox"/> Oxidized Root Channels			
					<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/> Water Stained			
					<input type="checkbox"/> Water Marks	<input type="checkbox"/> Local Soil Survey			
					<input type="checkbox"/> Drift Lines	<input type="checkbox"/> FAC Neutral Test			
					<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Other			
					<input checked="" type="checkbox"/> Drainage Pattern				
2. SAPLINGS/SHRUBS									
Quercus palustris		FACW	1						
3. VINES									
Smilax rotundifolia		FACW	4						
4. HERBACEOUS									
				VEGETATION:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present			
				SOILS:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present			
				HYDROLOGY:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present			
Percent of Dominant Species that are OBL, FACW or FAC:				75%					
Community Type:				DETERMINATION:					
<input checked="" type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input checked="" type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input type="checkbox"/> UPL				PHOTOGRAPH: No.7: View looking west along Complex SW-O (MP47.1)					
Classification (4):									
<input checked="" type="checkbox"/> Hydrophytic <input type="checkbox"/> Non-Hydrophytic									
SOILS									
DEPTH (Inches)	MATRIX COLOR (5)	MOTTLING COLORS (Munsell Moist)	MOTTLING ABUNDANCE/CONTRAST						TEXTURE (6)
0-2.5	10YR4/2	N/A	N/A						DUFF
2.5-9	10YR4/1	10YR4/3	COMM/DIST	SANDY LOAM					
9-18	10YR4/1	10YR6/1	COMM/DIST	SANDY LOAM					
18-26	10YR6/1	10YR6/8	COMM/DIST	SANDY CLAY LOAM					
Soil Unit as Mapped (7): Ac (Atsion sand)									
Soil Classification as Mapped (8):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric					

Station: MP No. 47.1		Complex SW-O		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 8 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
2. SAPLINGS/SHRUBS						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
none								
3. VINES								
none								
4. HERBACEOUS								
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.8: View looking south along Complex SW-O (MP47.1)				
<b>Classification (4):</b>								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-3	10YR6/1	N/A	N/A	DUFF				
3-11	10YR6/4	N/A	N/A	SANDY LOAM				
11-18	10YR6/4	7.5YR5/8	COMM/DIST	SANDY LOAM				
18-24	7.5YR5/8	10YR6/4	COMM/DIST	SANDY LOAM				
Soil Unit as Mapped (7): Ac (Atsion sand)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 45.4		Complex SW-T		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 9 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0	Inches			
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 0	Inches			
Acer rubrum		FAC	5	Depth of Surface Water: 1	Inches			
Nyssa sylvatica		FAC	2	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
Pinus rigida		FACU	4	Indicators:				
				<input checked="" type="checkbox"/> Inundated	<input checked="" type="checkbox"/> Oxidized Root Channels			
				<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/> Water Stained			
<b>2. SAPLINGS/SHRUBS</b>				<input checked="" type="checkbox"/> Water Marks	<input type="checkbox"/> Local Soil Survey			
Quercus palustris		FACW	5	<input type="checkbox"/> Drift Lines	<input type="checkbox"/> FAC Neutral Test			
Nyssa sylvatica		FACW	3	<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Other			
				<input checked="" type="checkbox"/> Drainage Pattern				
				<b>SUMMARY</b>				
<b>3. VINES</b>				VEGETATION:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
Smilax rotundifolia		FACW	2	SOILS:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
<b>4. HERBACEOUS</b>				HYDROLOGY:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:			75%	<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.9: View looking west along Complex SW-T (MP45.4)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST	HISTOSOL				
0-29	10YR4/1	N/A	N/A					
Soil Unit as Mapped (7): Ac (Atsion sand)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					




Station: MP No. 45.4		Complex SW-T		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 10 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary	Secondary		
2. SAPLINGS/SHRUBS				<input type="checkbox"/>	Inundated	<input type="checkbox"/>	Oxidized Root Channels	
none				<input type="checkbox"/>	Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	
				<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Local Soil Survey	
3. VINES				<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	FAC Neutral Test	
none				<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	Other	
				<input type="checkbox"/>	Drainage Pattern			
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				DETERMINATION:				
<input type="checkbox"/>	PFO1				PHOTOGRAPH: No. 10: View looking south along Complex SW-T (MP45.4)			
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
Classification (4):								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-3	10YR6/1	N/A	N/A	DUFF				
3-11	10YR6/4	N/A	N/A	SANDY LOAM				
11-18	10YR6/4	7.5YR5/8	COMM/DIST	SANDY LOAM				
18-24	7.5YR5/8	10YR6/4	COMM/DIST	SANDY LOAM				
Soil Unit as Mapped (7): Mta (Matawan sandy loam, 0-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 44.6		Complex SW-V		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 11 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover		Depth to free water in pit: 9	Inches			
1. CANOPY	Status (2)	Class (3)		Depth to Soil Saturation: 4	Inches			
Nyssa sylvatica	FAC	5		Depth of Surface Water: N/A	Inches			
Pinus rigida	FACU	3		Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
				Indicators:	Primary		Secondary	
					<input type="checkbox"/> Inundated		<input checked="" type="checkbox"/> Oxidized Root Channels	
					<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
2. SAPLINGS/SHRUBS					<input checked="" type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Nyssa sylvatica	FACW	5			<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
Ilex glabra	FACW	2			<input type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
					<input checked="" type="checkbox"/> Drainage Pattern			
3. VINES				<b>SUMMARY</b>				
				VEGETATION:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
4. HERBACEOUS				SOILS:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
				HYDROLOGY:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:		75%						
Community Type:				DETERMINATION:				
<input checked="" type="checkbox"/>	PFO1				PHOTOGRAPH: No. 11: View looking west along Complex SW-V (MP44.6)			
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
Classification (4):								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTILING COLORS	MOTTILING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-1	10YR4/2	N/A	N/A	DUFF				
1-9	10YR4/1	N/A	N/A	SANDY LOAM				
9-17	10YR4/1	10YR6/1	MANY/DIST	SANDY LOAM				
17-25	10YR6/1	10YR6/8	FEW/DIST	SANDY LOAM				
Soil Unit as Mapped (7): Ac (Atsion sand)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 44.6		Complex SW-V		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 12 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
2. SAPLINGS/SHRUBS				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
none						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES								
none								
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC: 0%								
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.12: View looking south along Complex SW-V (MP44.6)				
<b>Classification (4):</b>								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/3	N/A	N/A	DUFF				
2-11	10YR6/4	N/A	N/A	SANDY LOAM				
11-18	10YR6/4	10YR8/4	MANY/DIST	SANDY LOAM				
18-24	10YR8/4	N/A	N/A	SANDY LOAM				
Soil Unit as Mapped (7): LaA (Lakehurst sand, 0-3% slopes)								
Soil Classification as Mapped (8):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				



Station: <b>MP No. 43.4</b>		Complex <b>SW-AA</b>		Date: <b>12/20/99</b>	Project No.: <b>NJHA-00120</b>		Investigator: <b>KK</b> <input checked="" type="checkbox"/> <b>STK</b> <input type="checkbox"/>	
BORING NO. <b>13 WET</b>								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover		Depth to free water in pit: 3	Inches			
<b>1. CANOPY</b>	Status (2)	Class (3)		Depth to Soil Saturation: 2	Inches			
Chamaecyparis thyoides	OBL	4		Depth of Surface Water: N/A	Inches			
Acer rubrum	FAC	3		Wetland Hydrology Present:	<b>YES</b> <input checked="" type="checkbox"/> <b>NO</b> <input type="checkbox"/>			
				Indicators:	<b>Primary</b>		<b>Secondary</b>	
					<input checked="" type="checkbox"/> Inundated		<input checked="" type="checkbox"/> Oxidized Root Channels	
					<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
<b>2. SAPLINGS/SHRUBS</b>					<input checked="" type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Chamaecyparis thyoides	OBL	4			<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
Acer rubrum	FAC	3			<input type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
					<input checked="" type="checkbox"/> Drainage Pattern			
<b>3. VINES</b>				<b>SUMMARY</b>				
				VEGETATION:	<input checked="" type="checkbox"/> <b>Present</b>		<input type="checkbox"/> <b>Not Present</b>	
<b>4. HERBACEOUS</b>				SOILS:	<input checked="" type="checkbox"/> <b>Present</b>		<input type="checkbox"/> <b>Not Present</b>	
				HYDROLOGY:	<input checked="" type="checkbox"/> <b>Present</b>		<input type="checkbox"/> <b>Not Present</b>	
Percent of Dominant Species that are OBL, FACW or FAC:		100%						
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input checked="" type="checkbox"/>	PFO1	PHOTOGRAPH: No.13: View looking west along Complex SW-AA (MP43.4)						
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST	HISTOSOL				
0-34	10YR4/1	N/A	N/A					
Soil Unit as Mapped (7): <b>MU</b> (Muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> <b>Hydric</b>	<input type="checkbox"/> <b>Non-Hydric</b>					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> <b>Hydric</b>	<input type="checkbox"/> <b>Non-Hydric</b>					






Station: MP No. 43.4		Complex SW-AA		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 14 UPL								
<b>VEGETATION</b>		Indicator	Cover	<b>HYDROLOGY</b>				
Species (1)		Status (2)	Class (3)	Depth to free water in pit:		Inches		
1. CANOPY				Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
2. SAPLINGS/SHRUBS				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
none						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES				<b>SUMMARY</b>				
none				VEGETATION:		<input type="checkbox"/> Present		<input checked="" type="checkbox"/> Not Present
4. HERBACEOUS		N/L	5	SOILS:		<input type="checkbox"/> Present		<input checked="" type="checkbox"/> Not Present
LAWN				HYDROLOGY:		<input type="checkbox"/> Present		<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:			0%	<b>DETERMINATION:</b>				
Community Type:				PHOTOGRAPH: No.14: View looking south along Complex SW-AA (MP43.4)				
<input type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
Classification (4):								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-4	10YR4/4	N/A	N/A	DUFF				
4-8	7.5YR6/8	N/A	N/A	SAND				
8-10	7.5YR6/6	10YR5/8	MANY/DIST	SAND				
10-24	10YR5/8	10YR6/6	MANY/DIST	SAND				
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					

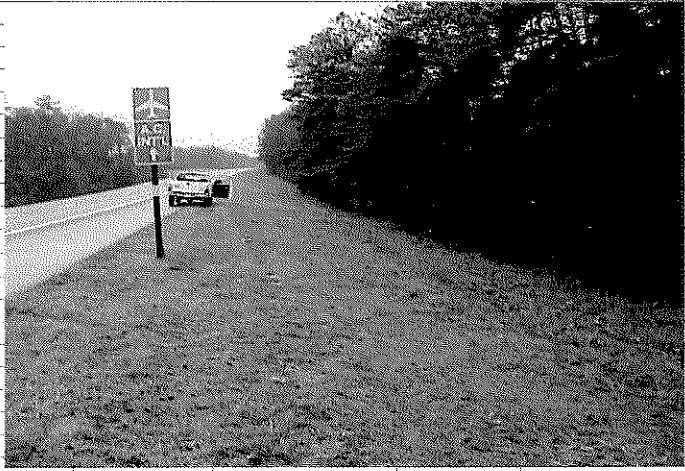


Station: MP No. 39.5		Complex SW-MM		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 15 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 4		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 2		Inches		
Chamaecyparis thoides		OBL	5	Depth of Surface Water: N/A		Inches		
Acer rubrum		FAC	3	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
Nyssa sylvatica		FAC	3	Indicators:		<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Saturated w/in upper 12" <input checked="" type="checkbox"/> Water Stained <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> Drift Lines <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Other <input checked="" type="checkbox"/> Drainage Pattern		
<b>2. SAPLINGS/SHRUBS</b>								
Chamaecyparis thoides		OBL	5					
Acer rubrum		FAC	4					
Nyssa sylvatica		FAC	3					
<b>3. VINES</b>								
<b>4. HERBACEOUS</b>								
				<b>SUMMARY</b>				
				VEGETATION:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
				SOILS:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
				HYDROLOGY:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:				100%				
				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No. 15: View looking west along Complex SW-MM (MP39.5)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-28	10YR4/1	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): MU (Muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

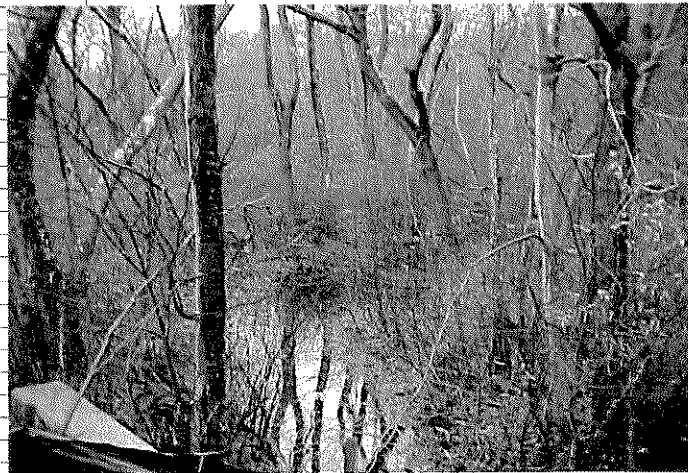
Station: <b>MP No. 39.5</b>		Complex <b>SW-MM</b>		Date: <b>12/20/99</b>	Project No.: <b>NJHA-00120</b>		Investigator: <b>KK</b> <input checked="" type="checkbox"/> <b>STK</b> <input type="checkbox"/>	
BORING NO. 16 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	<b>YES</b> <input type="checkbox"/> <b>NO</b> <input checked="" type="checkbox"/>			
				Indicators:	<b>Primary</b>	<b>Secondary</b>		
<b>2. SAPLINGS/SHRUBS</b>				<input type="checkbox"/>	Inundated	<input type="checkbox"/>	Oxidized Root Channels	
none				<input type="checkbox"/>	Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	
				<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Local Soil Survey	
				<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	FAC Neutral Test	
<b>3. VINES</b>				<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	Other	
none				<input type="checkbox"/>	Drainage Pattern			
				<b>SUMMARY</b>				
<b>4. HERBACEOUS</b>				VEGETATION:	<input type="checkbox"/> <b>Present</b>	<input checked="" type="checkbox"/> <b>Not Present</b>		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> <b>Present</b>	<input checked="" type="checkbox"/> <b>Not Present</b>		
				HYDROLOGY:	<input type="checkbox"/> <b>Present</b>	<input checked="" type="checkbox"/> <b>Not Present</b>		
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/>	PFO1				PHOTOGRAPH: No.16: View looking south along Complex SW-MM (MP39.5)			
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-4	10YR4/1	N/A	N/A	DUFF				
4-8	7.5YR6/4	N/A	N/A	SAND/LOAM				
8-10	7.5YR6/4	10YR8/6	MANY/DIST	SAND/LOAM				
10-24	10YR8/6	10YR6/4	MANY/DIST	SAND/LOAM				
Soil Unit as Mapped (7): <b>DoA</b> (Downer loamy sand, 0-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> <b>Hydric</b>	<input checked="" type="checkbox"/> <b>Non-Hydric</b>					
Soil Classification as Sampled (9):		<input type="checkbox"/> <b>Hydric</b>	<input checked="" type="checkbox"/> <b>Non-Hydric</b>					




Station: MP No. 38.6		Complex SW-PP		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 17 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0		Inches		
1. <b>CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 0		Inches		
Nyssa sylvatica		FAC	5	Depth of Surface Water: N/A		Inches		
Pinus rigida		FACU	3	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
				Indicators:		<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Stained <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> Drift Lines <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Other <input checked="" type="checkbox"/> Drainage Pattern		
<b>2. SAPLINGS/SHRUBS</b>								
Nyssa sylvatica		FACW	5					
Pinus rigida		FACU	3					
Acer rubrum		FAC	3					
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia		FAC	2	VEGETATION: <input checked="" type="checkbox"/>		Present		<input type="checkbox"/> Not Present
<b>4. HERBACEOUS</b>				SOILS: <input checked="" type="checkbox"/>		Present		<input type="checkbox"/> Not Present
				HYDROLOGY: <input checked="" type="checkbox"/>		Present		<input type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:				75%				
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input checked="" type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input checked="" type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input type="checkbox"/> UPL				PHOTOGRAPH: No. 17: View looking west along Complex SW-PP (MP38.6)				
<b>Classification (4):</b>								
<input checked="" type="checkbox"/> Hydrophytic <input type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-30	10YR4/1	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

Station: MP No. 38.6		Complex SW-PP		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 18 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
2. SAPLINGS/SHRUBS				<input type="checkbox"/>	Inundated	<input type="checkbox"/>	Oxidized Root Channels	
none				<input type="checkbox"/>	Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	
				<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Local Soil Survey	
				<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	FAC Neutral Test	
3. VINES				<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	Other	
none				<input type="checkbox"/>	Drainage Pattern			
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC: 0%								
				<b>DETERMINATION:</b>				
<b>Community Type:</b>				PHOTOGRAPH: No.18: View looking south along Complex SW-PP (MP38.6)				
<input type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTILING COLORS</b>	<b>MOTTILING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-4	10YR6/1	N/A	N/A	DUFF				
4-8	7.5YR6/4	N/A	N/A	SAND/LOAM				
8-10	7.5YR6/4	10YR8/6	MANY/DIST	SAND/LOAM				
10-24	10YR8/6	10YR6/4	MANY/DIST	SAND/LOAM				
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					

Station: MP No. 37.9		Complex SW-QQ		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 19 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover		Depth to free water in pit: 0	Inches			
1. CANOPY	Status (2)	Class (3)		Depth to Soil Saturation: 0	Inches			
Magnolia virginiana	FACW	5		Depth of Surface Water: 2	Inches			
Acer rubrum	FACW	3		Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
				Indicators:	Primary		Secondary	
					<input checked="" type="checkbox"/> Inundated		<input checked="" type="checkbox"/> Oxidized Root Channels	
					<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
2. SAPLINGS/SHRUBS					<input checked="" type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Magnolia virginiana	FACW	5			<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
Acer rubrum	FACW	3			<input type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
					<input checked="" type="checkbox"/> Drainage Pattern			
3. VINES				<b>SUMMARY</b>				
Smilax rotundifolia	FAC	2		VEGETATION:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
				SOILS:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
4. HERBACEOUS				HYDROLOGY:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:		75%		<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.19: View looking west along Complex SW-QQ (MP37.9)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-38	10YR4/1	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					




Station: MP No. 37.9		Complex SW-QQ		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>		
BORING NO. 20 UPL									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches	
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches	
none						Depth of Surface Water:		Inches	
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern	
2. SAPLINGS/SHRUBS								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
3. VINES									
none									
4. HERBACEOUS				<b>SUMMARY</b>					
LAWN		N/L		5		VEGETATION: <input type="checkbox"/>		Present <input checked="" type="checkbox"/> Not Present	
						SOILS: <input type="checkbox"/>		Present <input checked="" type="checkbox"/> Not Present	
						HYDROLOGY: <input type="checkbox"/>		Present <input checked="" type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				0%					
Community Type:				DETERMINATION:					
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No 20: View looking south along Complex SW-QQ (MP37.9)					
Classification (4):									
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING						TEXTURE (6)
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-4	10YR4/3	N/A	N/A						DUFF
4-11	10YR4/6	7.5YR6/8	FEW/DIST	SAND/LOAM					
11-16	10YR6/4	7.5YR6/8 & 7.5YR7/8	COMM/DIST	SAND/LOAM					
16-24	10YR6/8	7.5YR6/8	MANY/DIST	SAND/LOAM					
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric		<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 35.4		Complex SW-EEE		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 21 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 3	Inches			
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 3	Inches			
Chamaecyparis thyoides		OBL	5	Depth of Surface Water: N/A	Inches			
Acer rubrum		FAC	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
				Indicators:	<b>Primary</b>		<b>Secondary</b>	
					<input checked="" type="checkbox"/> Inundated		<input checked="" type="checkbox"/> Oxidized Root Channels	
<b>2. SAPLINGS/SHRUBS</b>					<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
Chamaecyparis thyoides		OBL	5		<input checked="" type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Acer rubrum		FAC	3		<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
Vaccinium corymbosum		FACW	2		<input type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
					<input checked="" type="checkbox"/> Drainage Pattern			
<b>3. VINES</b>				<b>SUMMARY</b>				
				VEGETATION:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>				SOILS:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Agrostis alba		FACW	2	HYDROLOGY:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC: 100%				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.21: View looking west along Complex SW-EEE (MP35.4)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2.5	10YR4/1	N/A	N/A	HISTOSOL				
2.5-8	10YR4/1	10YR7/1	MANY/DIST	SAND LOAM				
8-17	10YR4/1	10YR7/1 & 7/N	PROM/DIST	SANDY CLAY LOAM				
17-22	7/N	N/A	N/A	CLAY				
Soil Unit as Mapped (7): Ac (Atsion sand)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					





Station: MP No. 35.4		Complex SW-EEE		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>								
BORING NO. 22 UPL															
<b>VEGETATION</b>				<b>HYDROLOGY</b>											
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches										
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches										
none				Depth of Surface Water:	Inches										
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>										
				Indicators:	Primary	Secondary									
2. SAPLINGS/SHRUBS					<input type="checkbox"/> Inundated	<input type="checkbox"/> Oxidized Root Channels									
none					<input type="checkbox"/> Saturated w/in upper 12"	<input type="checkbox"/> Water Stained									
					<input type="checkbox"/> Water Marks	<input type="checkbox"/> Local Soil Survey									
					<input type="checkbox"/> Drift Lines	<input type="checkbox"/> FAC Neutral Test									
3. VINES					<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Other									
none					<input type="checkbox"/> Drainage Pattern										
				<b>SUMMARY</b>											
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present									
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present									
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present									
Percent of Dominant Species that are OBL, FACW or FAC:				0%											
Community Type:				DETERMINATION:											
<input type="checkbox"/>	PFO1	PHOTOGRAPH: No.22: View looking south along Complex SW-EEE (MP35.4)													
<input type="checkbox"/>	PEM1														
<input type="checkbox"/>	PSS1														
<input type="checkbox"/>	SOW														
<input type="checkbox"/>	CW														
<input checked="" type="checkbox"/>	UPL														
Classification (4):															
<input type="checkbox"/>	Hydrophytic														
<input checked="" type="checkbox"/>	Non-Hydrophytic														
<b>SOILS</b>															
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)											
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST												
0-4	10YR4/3	N/A	N/A	DUFF											
4-11	10YR4/6	10YR4/3	MANY/DIST	SAND/LOAM											
11-16	10YR6/8	10YR4/3 & 7.5YR5/8	MANY/DIST	SAND/LOAM											
16-24	10YR6/8	N/A	N/A	SAND/LOAM											
Soil Unit as Mapped (7): Ac (Atsion sand)															
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric												
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric												

Station: MP No. 35.3		Complex SM-X		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 23 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 2	Inches			
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 2	Inches			
Nyssa sylvatica		FACW	5	Depth of Surface Water: N/A	Inches			
Pinus rigida		FACU	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
				Indicators:	<b>Primary</b>	<b>Secondary</b>		
					<input type="checkbox"/> Inundated	<input type="checkbox"/> Oxidized Root Channels		
					<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/> Water Stained		
<b>2. SAPLINGS/SHRUBS</b>					<input checked="" type="checkbox"/> Water Marks	<input type="checkbox"/> Local Soil Survey		
Nyssa sylvatica		FACW	5		<input type="checkbox"/> Drift Lines	<input type="checkbox"/> FAC Neutral Test		
Pinus rigida		FACU	3		<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Other		
					<input checked="" type="checkbox"/> Drainage Pattern			
<b>3. VINES</b>								
				<b>SUMMARY</b>				
<b>4. HERBACEOUS</b>				VEGETATION:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
				SOILS:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
				HYDROLOGY:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				50%				
<b>Community Type:</b>				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.23: View looking south east along Complex SM-X (MP35.3)				
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-4	10YR4/1	N/A	N/A	HISTOSOL				
4-7.5	10YR4/2	10YR4/1	MANY/DIST	SANDY/ LOAM				
7.5-16	10YR4/2	10YR7/1 & 10YR7/8	MANY/DIST	SANDY/LOAM				
16-25	10YR7/1	10YR7/8	N/A	SANDY/LOAM				
Soil Unit as Mapped (7): Ac (Atsion sand)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					




Station: <b>MP No. 34.3</b>		Complex <b>SW-GGG</b>		Date: <b>12/20/99</b>	Project No.: <b>NJHA-00120</b>		Investigator: <b>KK</b> <input checked="" type="checkbox"/> <b>STK</b> <input type="checkbox"/>	
BORING NO. 24 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 3		Inches		
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 3		Inches		
Acer rubrum		FAC	5	Depth of Surface Water: N/A		Inches		
Nyssa sylvatica		FACW	3	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>		
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other
<b>2. SAPLINGS/SHRUBS</b>								
Prunus serotina		FACU	2					
Acer rubrum		FAC	4					
Nyssa sylvatica		FACW	4					
<b>3. VINES</b>				<b>SUMMARY</b>				
none				VEGETATION:		<input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present		
				SOILS:		<input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present		
<b>4. HERBACEOUS</b>				HYDROLOGY:		<input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:			80%	<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.24: View looking west along Complex SW-GGG (MP34.3)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-27	10YR4/1	N/A	N/A	HISTOSOL				
<b>Soil Unit as Mapped (7): MU (Muck)</b>								
<b>Soil Classification as Mapped (8):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
<b>Soil Classification as Sampled (9):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					




Station: MP No. 34.3		Complex SW-GGG		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 25 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary	Secondary		
2. SAPLINGS/SHRUBS				<input type="checkbox"/>	Inundated	<input type="checkbox"/>	Oxidized Root Channels	
none				<input type="checkbox"/>	Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	
				<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Local Soil Survey	
3. VINES				<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	FAC Neutral Test	
none				<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	Other	
				<input type="checkbox"/>	Drainage Pattern			
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
				<b>DETERMINATION:</b>				
Community Type:				PHOTOGRAPH: No.25: View looking south along Complex SW-GGG (MP34.3)				
<input type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-4	10YR4/1	N/A	N/A	DUFF				
4-11	10YR4/6	10YR5/6	MANY/DIST	SAND/LOAM				
11-16	10YR5/6	10YR4/6	MANY/DIST	SAND/LOAM				
16-24	10YR5/6	N/A	N/A	SAND/LOAM				
Soil Unit as Mapped (7): HaA (Hammonton loamy sand, 0-3% slopes)								
Soil Classification as Mapped (8):				<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric			
Soil Classification as Sampled (9):				<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric			



Station: <b>MP No. 32.2</b>		Complex <b>SW-JJJ</b>		Date: <b>12/20/99</b>	Project No.: <b>NJHA-00120</b>		Investigator: <b>KK</b> <input checked="" type="checkbox"/> <b>STK</b> <input type="checkbox"/>	
BORING NO. 26 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0	Inches			
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 0	Inches			
Acer rubrum		FAC	5	Depth of Surface Water: 2	Inches			
Pinus rigida		FACU	2	Wetland Hydrology Present:	<b>YES</b> <input checked="" type="checkbox"/> <b>NO</b> <input checked="" type="checkbox"/>			
				Indicators:	<b>Primary</b>		<b>Secondary</b>	
					<input checked="" type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels	
<b>2. SAPLINGS/SHRUBS</b>					<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/>	<input type="checkbox"/> Water Stained	
Chamaecyparis thyoides		OBL	3		<input checked="" type="checkbox"/> Water Marks	<input type="checkbox"/>	<input type="checkbox"/> Local Soil Survey	
Acer rubrum		FAC	3		<input type="checkbox"/> Drift Lines	<input type="checkbox"/>	<input type="checkbox"/> FAC Neutral Test	
Clethra alnifolia		FACW	3		<input checked="" type="checkbox"/> Sediment Deposits	<input type="checkbox"/>	<input type="checkbox"/> Other	
					<input type="checkbox"/> Drainage Pattern			
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia		FACW	4	VEGETATION:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/>	<input type="checkbox"/> Not Present	
				SOILS:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/>	<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>				HYDROLOGY:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/>	<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				83%	<b>DETERMINATION:</b>			
				PHOTOGRAPH: No.26: View looking west along Complex SW-JJJ (MP32.2)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-25	10YR4/1	N/A	N/A	HISTOSOL				
								
Soil Unit as Mapped (7): <b>MU</b> (Muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

Station: MP No. 32.2 BORING NO. 27 UPL		Complex SW-JJJ		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches
none						Depth of Surface Water:		Inches
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern
2. SAPLINGS/SHRUBS								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other
3. VINES								
none								
				<b>SUMMARY</b>				
4. HERBACEOUS						VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present <input type="checkbox"/> SOILS: Present <input checked="" type="checkbox"/> Not Present <input type="checkbox"/> HYDROLOGY: Present <input checked="" type="checkbox"/> Not Present
LAWN		N/L		5				
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				DETERMINATION:				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.27: View looking west along Complex SW-JJJ (MP32.2)				
Classification (4):								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-4	10YR4/1	N/A	N/A	DUFF				
4-11	10YR4/6	N/A	N/A	SANDY/LOAM				
11-16	10YR5/6	7.5YR6/8	MANY/DIST	SANDY/LOAM				
16-24	7.5YR6/8	10YR4/4	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): HaA (Hammonton loamy sand, 0-3% slopes)								
Soil Classification as Mapped (8):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				



Station: MP No. 34.3		SE-W	Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 28 WET							
<b>VEGETATION</b>				<b>HYDROLOGY</b>			
Species (1)	Indicator	Cover	Depth to free water in pit: 0	Inches			
1. CANOPY	Status (2)	Class (3)	Depth to Soil Saturation: 0	Inches			
Acer rubrum	FAC	5	Depth of Surface Water: N/A	Inches			
Pinus rigida	FACU	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
			Indicators:	<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern			
				<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other			
<b>2. SAPLINGS/SHRUBS</b>							
Acer rubrum	FAC	5					
Clethra alnifolia	FACW	3					
<b>3. VINES</b>							
Smilax rotundifolia	FACW	3					
<b>4. HERBACEOUS</b>							
				<b>SUMMARY</b> VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present			
Percent of Dominant Species that are OBL, FACW or FAC:		80%					
<b>Community Type:</b>				<b>DETERMINATION:</b>			
<input checked="" type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input checked="" type="checkbox"/> PSS1 <input checked="" type="checkbox"/> SOW <input type="checkbox"/> CW <input type="checkbox"/> UPL				PHOTOGRAPH: No.28: View looking east along Complex SE-W (MP34.3)			
<b>Classification (4):</b>							
<input checked="" type="checkbox"/> Hydrophytic <input type="checkbox"/> Non-Hydrophytic							
<b>SOILS</b>							
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>				<b>TEXTURE (6)</b>
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST				HISTOSOL
0-25	10YR4/1	N/A	N/A				
Soil Unit as Mapped (7): MU (Muck)							
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric				



Station: MP No. 34.3		Complex SE-W		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 29 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
2. SAPLINGS/SHRUBS					Inundated	<input type="checkbox"/>	Oxidized Root Channels	<input type="checkbox"/>
none					Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	<input type="checkbox"/>
					Water Marks	<input type="checkbox"/>	Local Soil Survey	<input type="checkbox"/>
					Drift Lines	<input type="checkbox"/>	FAC Neutral Test	<input type="checkbox"/>
3. VINES					Sediment Deposits	<input type="checkbox"/>	Other	<input type="checkbox"/>
none					Drainage Pattern	<input type="checkbox"/>		
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/>	PFO1			PHOTOGRAPH: No.29: View looking north along Complex SE-W (MP34.3)				
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-3	10YR4/3	N/A	N/A	DUFF				
3-8	10YR6/6	7.5YR6/8	MANY/DIST	SANDY/LOAM				
8-17	10YR6/8	N/A	N/A	SANDY/LOAM				
Soil Unit as Mapped (7): HaA (Hammonton loamy sand, 0-3% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					







Station: MP No. 35.6		SE-Z		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>		
BORING NO. 31 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 6		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation: 6		Inches	
Nyssa sylvatica		FACW		5		Depth of Surface Water: N/A		Inches	
Pinus rigida		FACU		4		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
Acer rubrum		FAC		2		Indicators:			
						<input type="checkbox"/>		Primary	
						<input checked="" type="checkbox"/>		Inundated	
						<input type="checkbox"/>		Saturated w/in upper 12"	
						<input type="checkbox"/>		Water Marks	
						<input type="checkbox"/>		Drift Lines	
						<input checked="" type="checkbox"/>		Sediment Deposits	
						<input type="checkbox"/>		Drainage Pattern	
								Secondary	
								<input type="checkbox"/> Oxidized Root Channels	
								<input checked="" type="checkbox"/> Water Stained	
								<input type="checkbox"/> Local Soil Survey	
								<input type="checkbox"/> FAC Neutral Test	
								<input type="checkbox"/> Other	
<b>2. SAPLINGS/SHRUBS</b>									
Nyssa sylvatica		FACW		5					
Pinus rigida		FACU		4					
Acer rubrum		FAC		2					
<b>3. VINES</b>									
Smilax rotundifolia		FACW		2		VEGETATION: <input checked="" type="checkbox"/>		Present	
						SOILS: <input checked="" type="checkbox"/>		Present	
						HYDROLOGY: <input checked="" type="checkbox"/>		Present	
								Not Present	
								Not Present	
								Not Present	
<b>4. HERBACEOUS</b>									
Percent of Dominant Species that are OBL, FACW or FAC:				71%		DETERMINATION:			
				PHOTOGRAPH: No.31: View looking east along Complex SE-Z (MP35.6)					
<b>Community Type:</b>									
<input checked="" type="checkbox"/>		PFO1							
<input type="checkbox"/>		PEM1							
<input checked="" type="checkbox"/>		PSS1							
<input type="checkbox"/>		SOW							
<input type="checkbox"/>		CW							
<input type="checkbox"/>		UPL							
<b>Classification (4):</b>									
<input checked="" type="checkbox"/>		Hydrophytic							
<input type="checkbox"/>		Non-Hydrophytic							
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-3		10YR4/2		N/A		N/A		DUFF	
3-13		10YR4/1		10YR3/3		MANY/DIST		SANDY/LOAM	
13-23		10YR4/1		10YR3/3 & 10YR7/1		MANY/DIST		SANDY/LOAM	
Soil Unit as Mapped (7): Ac (Atsion sand)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					



Station: MP No. 35.6		Complex SE-Z		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 32 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
2. SAPLINGS/SHRUBS				<input type="checkbox"/>	Inundated	<input type="checkbox"/>	Oxidized Root Channels	
none				<input type="checkbox"/>	Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	
				<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Local Soil Survey	
				<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	FAC Neutral Test	
3. VINES				<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	Other	
none				<input type="checkbox"/>	Drainage Pattern			
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				DETERMINATION:				
<input type="checkbox"/>	PFO1	PHOTOGRAPH: No.32: View looking north along Complex SE-Z (MP35.6)						
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
Classification (4):								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-1	10YR4/1	N/A	N/A	DUFF				
1-11	10YR4/6	10YR5/6	MANY/DIST	SANDY/LOAM				
11-18	10YR5/6	10YR4/6	MANY/DIST	SANDY/LOAM				
18-27	10YR5/6	N/A	N/A	SANDY/LOAM				
Soil Unit as Mapped (7): Ac (Atsion sand)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					




Station: MP No. 37.9 BORING NO. 33 UPL		Complex SE-LL		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches
none						Depth of Surface Water:		Inches
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern
2. SAPLINGS/SHRUBS								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other
3. VINES								
none								
4. HERBACEOUS				<b>SUMMARY</b>				
LAWN		N/L		5		VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present <input type="checkbox"/> SOILS: Present <input checked="" type="checkbox"/> Not Present <input type="checkbox"/> HYDROLOGY: Present <input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				DETERMINATION:				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.33: View looking north along Complex SE-LL (MP37.9)				
Classification (4):								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/1	N/A	N/A	DUFF				
2-5	10YR4/6	10YR5/6	MANY/DIST	SANDY/LOAM				
5-16	10YR5/6	10YR4/6	MANY/DIST	SANDY/LOAM				
16-26	10YR5/6	N/A	N/A	SANDY/LOAM				
Soil Unit as Mapped (7): DoA (Downer loamy sand, 0-5% slopes)								
Soil Classification as Mapped (8):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				




Station: MP No. 37.9		SE-LL		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 34 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0		Inches		
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 0		Inches		
Nyssa sylvatica		FACW	5	Depth of Surface Water: 0		Inches		
Pinus rigida		FACU	3	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>		
Magnolia virginiana		FAC	3	Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern		
<b>2. SAPLINGS/SHRUBS</b>				<b>Secondary</b>				
Nyssa sylvatica		FACW	5	<input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other				
<b>3. VINES</b>								
<b>4. HERBACEOUS</b>								
Percent of Dominant Species that are OBL, FACW or FAC:				75%				
<b>Community Type:</b>				<b>SUMMARY</b>				
<input checked="" type="checkbox"/>	PFO1			VEGETATION:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present
<input type="checkbox"/>	PEM1			SOILS:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present
<input type="checkbox"/>	PSS1			HYDROLOGY:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>				<b>DETERMINATION:</b>				
<input checked="" type="checkbox"/>	Hydrophytic			PHOTOGRAPH: No 34: View looking east along Complex SE-LL (MP37.9)				
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-20	10YR4/1	N/A	N/A	DUFF				
20-27	10YR6/1	10YR4/2	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 37.9		Complex: SM-BB		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 35 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 1	Inches			
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 1	Inches			
Nyssa sylvatica		FACW	5	Depth of Surface Water: 1	Inches			
Pinus rigida		FACU	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
Magnolia virginiana		FAC	2	Indicators:	<b>Primary</b>	<b>Secondary</b>		
Quercus palustris		FACW	2		<input type="checkbox"/> Inundated	<input type="checkbox"/> Oxidized Root Channels		
					<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/> Water Stained		
					<input type="checkbox"/> Water Marks	<input type="checkbox"/> Local Soil Survey		
<b>2. SAPLINGS/SHRUBS</b>					<input type="checkbox"/> Drift Lines	<input type="checkbox"/> FAC Neutral Test		
Nyssa sylvatica		FACW	5		<input checked="" type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Other		
					<input checked="" type="checkbox"/> Drainage Pattern			
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia		FAC	5	VEGETATION:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
				SOILS:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
<b>4. HERBACEOUS</b>				HYDROLOGY:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC: 83%				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.35: View looking west along Complex SM-BB (MP37.9)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-18	10YR4/1	N/A	N/A	DUFF				
18-23	10YR6/1	10YR4/2	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

Station: MP No. 38.7		Complex: SE-MM		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 36 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:3	Inches			
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 3	Inches			
Nyssa sylvatica		FACW	5	Depth of Surface Water: N/A	Inches			
Pinus rigida		FACU	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
					<input type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels	
<b>2. SAPLINGS/SHRUBS</b>					<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
Nyssa sylvatica		FACW	5		<input type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Quercus alba		FACW	4		<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
					<input checked="" type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
					<input checked="" type="checkbox"/> Drainage Pattern			
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia		FAC	5	VEGETATION:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
				SOILS:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>				HYDROLOGY:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Symplocarpus foetidus		FACU	2					
Percent of Dominant Species that are OBL, FACW or FAC:				66%	<b>DETERMINATION:</b>			
					PHOTOGRAPH: No.36: View looking east along Complex SE-MM (MP38.7)			
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/1	N/A	N/A	DUFF				
2-11	10YR4/1	10YR3/2	MANY/DIST	SANDY/LOAM				
11-14	10YR3/2	10YR4/1	MANY/DIST	SANDY/LOAM				
14-26	10YR4/1	10YR6/1	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



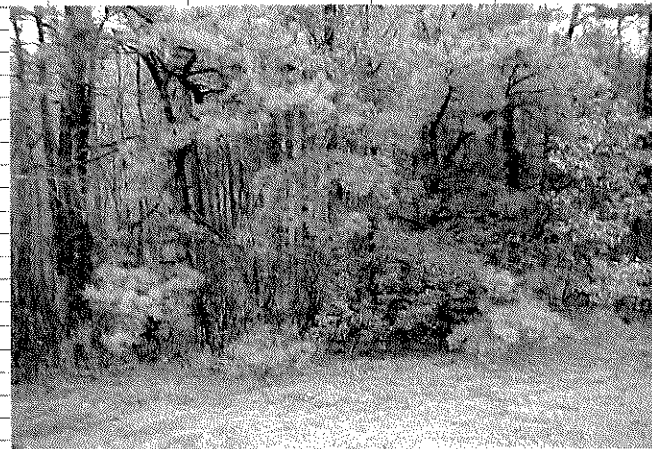
Station: MP No. 38.7		Complex SE-MM		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 37 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
2. SAPLINGS/SHRUBS						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
none								
3. VINES								
none								
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.37: View looking north along Complex SE-MM (MP38.7)				
<b>Classification (4):</b>								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/3	N/A	N/A	DUFF				
2-11	10YR6/4	N/A	N/A	SANDY/LOAM				
11-14	10YR6/4	10YR8/6	MANY/DIST	SANDY/LOAM				
14-23	10YR8/6	10YR6/4	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					




Station: MP No. 38.6		Complex: SM-FF		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 38 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 3		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation: 3		Inches	
Nyssa sylvatica		FACW		5		Depth of Surface Water: N/A		Inches	
Pinus rigida		FACU		3		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:			
						<input type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels	
<b>2. SAPLINGS/SHRUBS</b>						<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
Nyssa sylvatica		FACW		5		<input type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Quercus alba		FACW		4		<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
						<input checked="" type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
						<input checked="" type="checkbox"/> Drainage Pattern			
<b>3. VINES</b>						<b>SUMMARY</b>			
Smilax rotundifolia		FAC		5		VEGETATION: <input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
						SOILS: <input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>						HYDROLOGY: <input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				80%					
						<b>DETERMINATION:</b>			
						PHOTOGRAPH: No.38: View looking west along Complex SM-FF (MP38.6)			
<b>Community Type:</b>									
<input checked="" type="checkbox"/>		PFO1							
<input type="checkbox"/>		PEM1							
<input type="checkbox"/>		PSS1							
<input type="checkbox"/>		SOW							
<input type="checkbox"/>		CW							
<input type="checkbox"/>		UPL							
<b>Classification (4):</b>									
<input checked="" type="checkbox"/>		Hydrophytic							
<input type="checkbox"/>		Non-Hydrophytic							
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-2		10YR4/1		N/A		N/A		DUFF	
2-11		10YR4/1		10YR3/2		MANY/DIST		SANDY/LOAM	
11-14		10YR3/2		10YR4/1		MANY/DIST		SANDY/LOAM	
14-26		10YR4/1		10YR6/1		MANY/DIST		SANDY/LOAM	
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)									
Soil Classification as Mapped (8):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric					



Station: MP No. 39.4		Complex: SE- NN		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 39 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 2		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation: 2		Inches	
Nyssa sylvatica		FACW		5		Depth of Surface Water: N/A		Inches	
Pinus rigida		FACU		1		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
Quercus palustris		FACW		1		Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern	
Magnolia virginiana		FACW		3				<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
<b>2. SAPLINGS/SHRUBS</b>									
Nyssa sylvatica		FACW		5					
Chamaecyparis thyoides		OBL		3					
Magnolia virginiana		FACW		3					
<b>3. VINES</b>									
<b>4. HERBACEOUS</b>									
Percent of Dominant Species that are OBL, FACW or FAC:				85%		<b>SUMMARY</b> VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present			
Community Type:				<b>DETERMINATION:</b> PHOTOGRAPH: No.39: View looking east along Complex SE-NN (MP39.4)					
<input checked="" type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input checked="" type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input type="checkbox"/> UPL									
Classification (4):									
<input checked="" type="checkbox"/> Hydrophytic <input type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>					
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-42	10YR4/1	N/A	N/A	HISTOSOL					
Soil Unit as Mapped (7): MU (Muck)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric							
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric							




Station: MP No. 39.4 BORING NO. 40 UPL		Complex SE-NN		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator		Cover		Depth to free water in pit: Inches		
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation: Inches		
none						Depth of Surface Water: Inches		
						Wetland Hydrology Present: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
						Indicators:		
						<input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
2. SAPLINGS/SHRUBS						<b>Primary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
none								
3. VINES								
none								
4. HERBACEOUS				<b>SUMMARY</b>				
LAWN		N/L		5		VEGETATION: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present SOILS: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present HYDROLOGY: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				DETERMINATION:				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.40: View looking north along Complex SE-NN (MP39.4)				
Classification (4):								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/3	N/A	N/A	DUFF				
2-11	10YR4/3	10YR5/8	MANY/DIST	SANDY/LOAM				
11-14	10YR5/8	10YR4/3	MANY/DIST	SANDY/LOAM				
14-23	10YR5/8	10YR6/4	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): DoA (Downer loamy sand)								
Soil Classification as Mapped (8):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				

Station: MP No. 43.2		Complex SE-RR		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 41 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
2. SAPLINGS/SHRUBS					Inundated	<input type="checkbox"/>	Oxidized Root Channels	<input type="checkbox"/>
none					Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	<input type="checkbox"/>
					Water Marks	<input type="checkbox"/>	Local Soil Survey	<input type="checkbox"/>
					Drift Lines	<input type="checkbox"/>	FAC Neutral Test	<input type="checkbox"/>
3. VINES					Sediment Deposits	<input type="checkbox"/>	Other	<input type="checkbox"/>
none					Drainage Pattern	<input type="checkbox"/>		
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
Community Type:				DETERMINATION:				
<input type="checkbox"/>	PFO1			PHOTOGRAPH: No.41: View looking north along Complex SE-RR (MP43.2)				
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
Classification (4):								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/3	N/A	N/A	DUFF				
2-11	10YR4/6	7.5YR6/8 & 7.5YR7/8	FEW/DIST	SANDY/LOAM				
11-14	10YR4/6	7.5YR6/8 & 7.5YR7/8	COMM/DIST	SANDY/LOAM				
14-23	7.5YR6/8	7.5YR7/8	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): Mta (Matawan sandy loam, 2-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 43.2		Complex: SE-RR		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 42 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover	Depth to free water in pit: 1 inches					
1. CANOPY	Status (2)	Class (3)	Depth to Soil Saturation: 0 inches					
Chamaecyparis thyoides	OBL	4	Depth of Surface Water: N/A inches					
Acer rubrum	FAC	4	Wetland Hydrology Present: YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>					
			Indicators:					
			Primary			Secondary		
			<input type="checkbox"/> Inundated			<input type="checkbox"/> Oxidized Root Channels		
			<input checked="" type="checkbox"/> Saturated w/in upper 12"			<input checked="" type="checkbox"/> Water Stained		
			<input type="checkbox"/> Water Marks			<input type="checkbox"/> Local Soil Survey		
			<input type="checkbox"/> Drift Lines			<input type="checkbox"/> FAC Neutral Test		
			<input type="checkbox"/> Sediment Deposits			<input type="checkbox"/> Other		
			<input checked="" type="checkbox"/> Drainage Pattern					
<b>2. SAPLINGS/SHRUBS</b>								
Chamaecyparis thyoides	OBL	5						
Acer rubrum	FAC	4						
Vaccinium corymbosum	FACW	3						
<b>3. VINES</b>				<b>SUMMARY</b>				
				VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present				
<b>4. HERBACEOUS</b>				SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present				
				HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present				
Percent of Dominant Species that are OBL, FACW or FAC: 100%								
				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No. 42: View looking east along Complex SE-RR (MP43.2)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-29	10YR4/1	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 43.2		Complex: SM-LLL		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 43 WET									
<b>VEGETATION</b>					<b>HYDROLOGY</b>				
Species (1)		Indicator		Cover		Depth to free water in pit: 0		Inches	
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation: 0		Inches	
Chamaecyparis thyoides		OBL		5		Depth of Surface Water: N/A		Inches	
Acer rubrum		FAC		3		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern	
								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
<b>2. SAPLINGS/SHRUBS</b>									
Chamaecyparis thyoides		OBL		5					
Acer rubrum		FAC		2					
<b>3. VINES</b>									
<b>4. HERBACEOUS</b>									
Percent of Dominant Species that are OBL, FACW or FAC:					100%				
<b>Community Type:</b>					<b>SUMMARY</b>				
<input checked="" type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input type="checkbox"/> UPL					VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present				
					<b>DETERMINATION:</b>				
					PHOTOGRAPH: No.43: View looking east along Complex SM-LL (MP43.2)				
<b>Classification (4):</b>									
<input checked="" type="checkbox"/> Hydrophytic <input type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-31		10YR2/1		N/A		N/A		HISTOSOL	
Soil Unit as Mapped (7): Po (Pocomoke sandy loam)									
Soil Classification as Mapped (8):					<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):					<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric				

Station: MP No. 44.9		Complex: SE-TT		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 44 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:6	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 5	Inches			
Chamaecyparis thyoides		OBL	4	Depth of Surface Water: N/A	Inches			
Acer rubrum		FAC	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
Nyssa sylvatica		FACW	2	Indicators:	Primary		Secondary	
					Inundated	<input type="checkbox"/>	Oxidized Root Channels	<input type="checkbox"/>
					<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/>	Water Stained	<input checked="" type="checkbox"/>
					<input type="checkbox"/> Water Marks	<input type="checkbox"/>	Local Soil Survey	<input type="checkbox"/>
					<input checked="" type="checkbox"/> Drift Lines	<input type="checkbox"/>	FAC Neutral Test	<input type="checkbox"/>
					<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/>	Other	<input type="checkbox"/>
					<input checked="" type="checkbox"/> Drainage Pattern			
<b>2. SAPLINGS/SHRUBS</b>				<b>SUMMARY</b>				
Chamaecyparis thyoides		OBL	5	VEGETATION:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
Acer rubrum		FAC	2	SOILS:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
Nyssa sylvatica		FACW	2	HYDROLOGY:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
<b>3. VINES</b>								
<b>4. HERBACEOUS</b>								
Percent of Dominant Species that are OBL, FACW or FAC:				100%				
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input checked="" type="checkbox"/>	PFO1				PHOTOGRAPH: No.44: View looking north along Complex SE-TT (MP44.9)			
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTILING COLORS</b>	<b>MOTTILING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-4	10YR4/2	N/A	N/A	HISTOSOL				
4-17	10YR4/2	10YR7/1	MANY/DIST	SANDY/LOAM				
17-23	10YR7/1	10YR4/2	FEW/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): KmA (Kle) loamy sand, 0-3% slopes								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 44.9		Complex SE-TT		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 45 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary	Secondary		
2. SAPLINGS/SHRUBS				<input type="checkbox"/>	Inundated	<input type="checkbox"/>	Oxidized Root Channels	
none				<input type="checkbox"/>	Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	
				<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Local Soil Survey	
				<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	FAC Neutral Test	
3. VINES				<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	Other	
none				<input type="checkbox"/>	Drainage Pattern			
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				DETERMINATION:				
<input type="checkbox"/>	PFO1				PHOTOGRAPH: No.45 View looking north along Complex SE-TT (MP44.9)			
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
Classification (4):								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/1	N/A	N/A	DUFF				
2-8	7.5YR5/8	7.5YR6/8	MANY/DIST	SANDY/LOAM				
8-14	7.5YR6/8	N/A	N/A	SANDY/LOAM				
14-25	7.5YR6/8	10YR7/1	FEW/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): DoA (Downer loamy sand, 0-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					

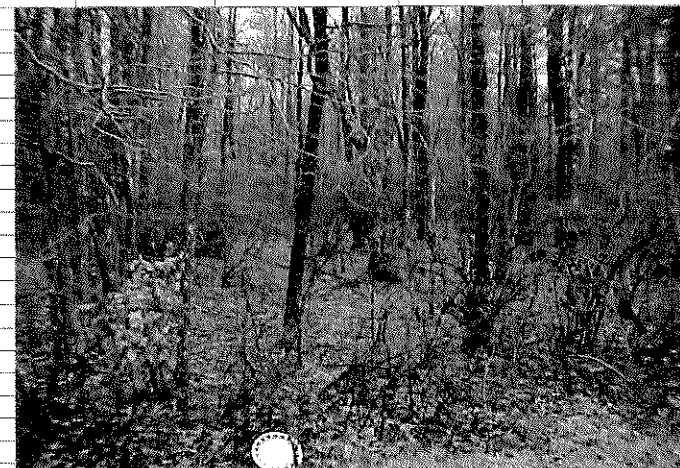




Station: MP No. 44.8		Complex: SM-QQQ		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 46 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 6	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 5	Inches			
Chamaecyparis thyoides		OBL	4	Depth of Surface Water: N/A	Inches			
Acer rubrum		FAC	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
Nyssa sylvatica		FACW	2	Indicators:	Primary	Secondary		
				<input type="checkbox"/>	Inundated	<input type="checkbox"/>	Oxidized Root Channels	
				<input checked="" type="checkbox"/>	Saturated w/in upper 12"	<input checked="" type="checkbox"/>	Water Stained	
				<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Local Soil Survey	
				<input checked="" type="checkbox"/>	Drift Lines	<input type="checkbox"/>	FAC Neutral Test	
				<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	Other	
				<input checked="" type="checkbox"/>	Drainage Pattern			
				<b>SUMMARY</b>				
3. VINES				VEGETATION:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
				SOILS:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
4. HERBACEOUS				HYDROLOGY:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
Percent of Dominant Species that are OBL, FACW or FAC:			100%	<b>DETERMINATION:</b>				
				PHOTOGRAPH: No. 46: View looking west along Complex SM-QQQ (MP44.8)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-1	10YR4/1	N/A	N/A	DUFF				
1-6	10YR4/1	10YR6/1	MANY/DIST	SANDY/LOAM				
6-14	10YR6/1	10YR4/1	MANY/DIST	SANDY/LOAM				
14-24	10YR6/1	10YR4/6	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): DoA (Downer loamy sand, 0-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					





Station: MP No. 46.9		Complex: SE-BBB		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 47 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 2	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 2	Inches			
Nyssa sylvatica		FACW	2	Depth of Surface Water: N/A	Inches			
Acer rubrum		FAC	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern			
				<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other				
<b>2. SAPLINGS/SHRUBS</b>								
Nyssa sylvatica		FACW	5					
Acer rubrum		FAC	4					
Quercus palustris		FACW	3					
Vaccinium corymbosum		FACW	3					
<b>3. VINES</b>								
<b>4. HERBACEOUS</b>								
Percent of Dominant Species that are OBL, FACW or FAC:				100%				
				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No. 47: View looking east along Complex SE-BBB (MP46.9)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTling COLORS	MOTTling	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-27	10YR4/1	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): Ac (Atsion sand)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					




Station: MP No. 46.9		Complex SE-BBB		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 48 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
2. SAPLINGS/SHRUBS					Inundated	<input type="checkbox"/>	Oxidized Root Channels	<input type="checkbox"/>
none					Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	<input type="checkbox"/>
					Water Marks	<input type="checkbox"/>	Local Soil Survey	<input type="checkbox"/>
					Drift Lines	<input type="checkbox"/>	FAC Neutral Test	<input type="checkbox"/>
3. VINES					Sediment Deposits	<input type="checkbox"/>	Other	<input type="checkbox"/>
none					Drainage Pattern	<input type="checkbox"/>		
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/>	PFO1			PHOTOGRAPH: No.48 View looking north along Complex SE-BBB (MP46.9)				
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/3	N/A	N/A	DUFF				
2-8	10YR4/6	7.5YR6/8	FEW/DIST	SANDY/LOAM				
8-14	10YR4/6	7.5YR6/8 & 7.5YR7/8	COMM/DIST	SANDY/LOAM				
14-25	7.5YR6/8	7.5YR7.8	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): LaA (Lakehurst sand, 0-3% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 46.9		Complex: SM-YYY		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 49 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 1	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 1	Inches			
Nyssa sylvatica		FACW	5	Depth of Surface Water: N/A	Inches			
Acer rubrum		FAC	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
Quercus palustris		FACW	2	Indicators:	<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern		<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
<b>2. SAPLINGS/SHRUBS</b>								
Nyssa sylvatica		FACW	5					
Acer rubrum		FAC	3					
Quercus palustris		FACW	1					
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia		FAC	4	VEGETATION:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
				SOILS:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
				HYDROLOGY:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
<b>4. HERBACEOUS</b>								
Percent of Dominant Species that are OBL, FACW or FAC:				100%		DETERMINATION:		
				PHOTOGRAPH: No. 49: View looking west along Complex SM-YYY (MP46.9)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-23	10YR4/2	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): Ac (Atsion sand)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

Station: MP No. 53.4		Complex: SE-NNN		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>	
BORING NO. 50 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 0	Inches			
Nyssa sylvatica		FACW	5	Depth of Surface Water: 1	Inches			
Acer rubrum		FAC	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
Pinus rigida		FACU	2	Indicators:	<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern			
<b>2. SAPLINGS/SHRUBS</b>				<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other				
Nyssa sylvatica		FACW	5					
Acer rubrum		FAC	3					
Pinus rigida		FACU	1					
Vaccinium corymbosum		FACW	3					
<b>3. VINES</b>				<b>SUMMARY</b> VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present				
<b>4. HERBACEOUS</b>								
Percent of Dominant Species that are OBL, FACW or FAC:				71%				
<b>Community Type:</b>				<b>DETERMINATION:</b> PHOTOGRAPH: No.50: View looking east along Complex SE-NNN (MP46.9)				
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-24	10YR4/2	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): LaA (Lakehurst sand, 0-3% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

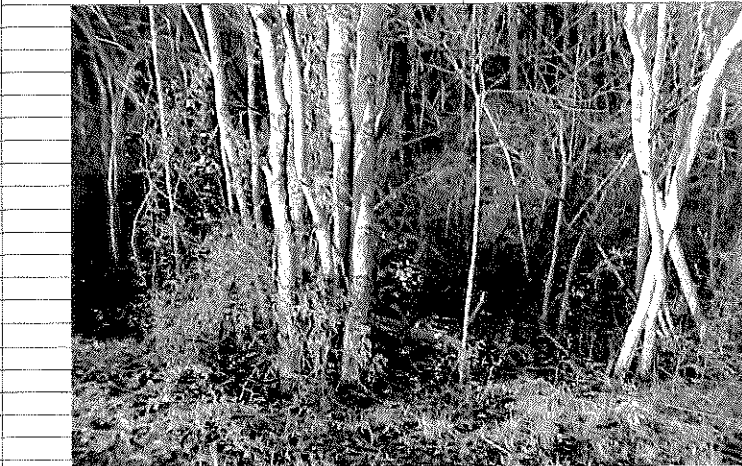
Station: MP No. 53.4 BORING NO. 51 UPL		Complex SE-NNN		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input type="checkbox"/>		
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches	
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches	
none						Depth of Surface Water:		Inches	
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern	
2. SAPLINGS/SHRUBS								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
3. VINES									
none									
4. HERBACEOUS				<b>SUMMARY</b>					
LAWN		N/L		5		VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present <input type="checkbox"/> SOILS: Present <input checked="" type="checkbox"/> Not Present <input type="checkbox"/> HYDROLOGY: Present <input checked="" type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				0%					
Community Type:				DETERMINATION:					
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.50 View looking north along Complex SE-NNN (MP53.4)					
Classification (4):									
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING						TEXTURE (6)
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-2	10YR4/3	N/A	N/A						DUFF
2-14	10YR4/3	10YR 5/8	MANY/DIST	SANDY/LOAM					
14-20	10YR5/8	10YR4/3	MANY/DIST	SANDY/LOAM					
20-26	10YR5/8	10YR 4/6	MANY/DIST	SANDY/LOAM					
Soil Unit as Mapped (7): LaA (Lakehurst sand, 0-3% slopes)									
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric						
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric						

Station: MP No. 80.5		Complex NW-AAA		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 52 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
2. SAPLINGS/SHRUBS					Inundated	<input type="checkbox"/>	Oxidized Root Channels	<input type="checkbox"/>
none					Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	<input type="checkbox"/>
					Water Marks	<input type="checkbox"/>	Local Soil Survey	<input type="checkbox"/>
3. VINES					Drift Lines	<input type="checkbox"/>	FAC Neutral Test	<input type="checkbox"/>
none					Sediment Deposits	<input type="checkbox"/>	Other	<input type="checkbox"/>
					Drainage Pattern	<input type="checkbox"/>		
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/>	PFO1				PHOTOGRAPH: No. 51 View looking south along Complex NW-AAA (MP80.5)			
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-3	10YR4/2	N/A	N/A	DUFF				
3-18	7.5YR6/8	10YR 4/3	MANY/DIST	SANDY/LOAM				
18-25	7.5YR6/8	7.5YR4/4	PROM/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): LwB (Lakewood fine sand, 0-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					







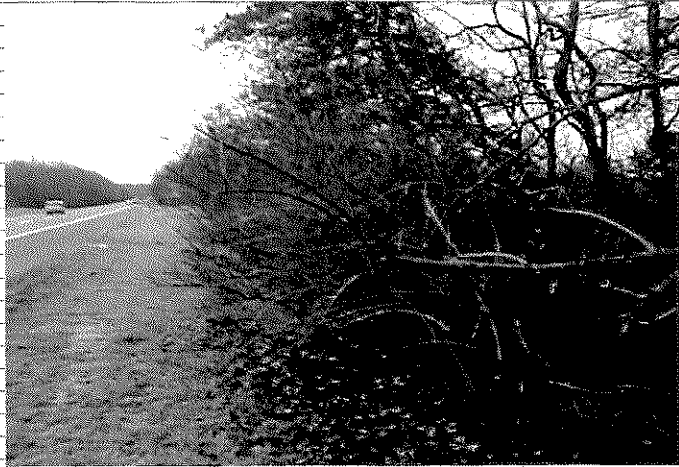
Station: MP No. 80.5		Complex: NW-AAA		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 53 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 0		Inches	
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation: 0		Inches	
Chamaecyparis thyoides		OBL		5		Depth of Surface Water: 1		Inches	
Acer rubrum		FAC		4		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
Pinus rigida		FACU		2		Indicators:		<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern	
								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
<b>2. SAPLINGS/SHRUBS</b>									
Chamaecyparis thyoides		OBL		4					
Acer rubrum		FAC		5					
Ilex opaca		FACU		2					
<b>3. VINES</b>									
<b>4. HERBACEOUS</b>									
Lonicera japonica		FAC		3					
Percent of Dominant Species that are OBL, FACW or FAC:				66%					
<b>Community Type:</b>									
<input checked="" type="checkbox"/>		PFO1							
<input type="checkbox"/>		PEM1							
<input checked="" type="checkbox"/>		PSS1							
<input checked="" type="checkbox"/>		SOW							
<input type="checkbox"/>		CW							
<input type="checkbox"/>		UPL							
<b>Classification (4):</b>									
<input checked="" type="checkbox"/>		Hydrophytic							
<input type="checkbox"/>		Non-Hydrophytic							
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-30		10YR2/1		N/A		N/A		HISTOSOL	
Soil Unit as Mapped (7): Ma (Manahawkin muck)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					






Station: MP No. 79.3		Complex NW-A		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 54 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
2. SAPLINGS/SHRUBS						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES								
none								
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC: 0%								
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.54 View looking west along Complex NW-A (MP79.3)				
<b>Classification (4):</b>								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-3	10YR2/1	N/A	N/A	DUFF				
3-6	7.5YR6/8	10YR 2/1	MANY/DIST	SANDY/LOAM				
6-22	7.5YR6/8	7.5YR4/4	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): WoB (Woodmansie sand, 0-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					


Station: MP No. 79.3		Complex: NW-A		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 55 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 8	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 3	Inches			
Acer rubrum		FAC	5	Depth of Surface Water: N/A	Inches			
				Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern			
					<b>Secondary</b> <input checked="" type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other			
<b>2. SAPLINGS/SHRUBS</b>								
Acer rubrum		FAC	5					
Vaccinium corymbosum		FACW	3					
<b>3. VINES</b>								
Smilax rotundifolia		FAC	4					
<b>4. HERBACEOUS</b>								
				<b>SUMMARY</b> VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present				
Percent of Dominant Species that are OBL, FACW or FAC:				66%				
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input checked="" type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input checked="" type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input type="checkbox"/> UPL				PHOTOGRAPH: No. 55: View looking west along Complex NW-A (MP79.3)				
<b>Classification (4):</b>								
<input checked="" type="checkbox"/> Hydrophytic <input type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-3	10YR4/2	N/A	N/A	HISTOSOL				
3-11	10YR5/1	10YR4/2	MANY/DIST	SANDY/LOAM				
11-24	10YR5/1	10YR4/2 & 10YR5/8	PROM/DIST	SANDY/LOAM				
<b>Soil Unit as Mapped (7): WoB (Woodmansie sand, 0-5% slopes)</b>								
<b>Soil Classification as Mapped (8):</b>		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
<b>Soil Classification as Sampled (9):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

Station: MP No. 77.3		Complex NW-B		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 56 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
2. SAPLINGS/SHRUBS						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES								
none								
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC: 0%								
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.56 View looking south along Complex NW-B (MP77.3)				
<b>Classification (4):</b>								
<input type="checkbox"/> Hydrophytic								
<input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-3	10YR4/2	N/A	N/A	DUFF				
3-6	7.5YR6/6	10YR 4/2	MANY/DIST	SANDY/LOAM				
6-22	7.5YR6/6	7.5YR4/4	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): LhA (Lakehurst sand, 0-3% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					

Station: MP No. 77.3		Complex: NW-B		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 57 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 0		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation: 0		Inches	
Chamaecyparis thyoides		OBL		4		Depth of Surface Water: 1		Inches	
Acer rubrum		FAC		3		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern	
								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
<b>2. SAPLINGS/SHRUBS</b>									
Chamaecyparis thyoides		OBL		5					
Acer rubrum		FAC		4					
Clethra alnifolia		FACW		3					
<b>3. VINES</b>				<b>SUMMARY</b>					
Smilax rotundifolia		FAC		4		VEGETATION: <input checked="" type="checkbox"/>		Present <input type="checkbox"/> Not Present	
						SOILS: <input checked="" type="checkbox"/>		Present <input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>						HYDROLOGY: <input checked="" type="checkbox"/>		Present <input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				66%		<b>DETERMINATION:</b>			
						PHOTOGRAPH: No.57: View looking west along Complex NW-B (MP77.3)			
<b>Community Type:</b>									
<input checked="" type="checkbox"/>		PFO1							
<input type="checkbox"/>		PEM1							
<input checked="" type="checkbox"/>		PSS1							
<input checked="" type="checkbox"/>		SOW							
<input type="checkbox"/>		CW							
<input type="checkbox"/>		UPL							
<b>Classification (4):</b>									
<input checked="" type="checkbox"/>		Hydrophytic							
<input type="checkbox"/>		Non-Hydrophytic							
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-26		10YR4/1		N/A		N/A		HISTOSOL	
Soil Unit as Mapped (7): Ma (Manahawkin muck)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					



Station: MP No. 76.2		Complex: NW-C		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>		
BORING NO. 58 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator	Cover	Depth to free water in pit: 0	Inches				
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 0	Inches				
Nyssa sylvatica		FACW	4	Depth of Surface Water: 1	Inches				
Acer rubrum		FAC	2	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>				
Pinus rigida		FACU	1	Indicators:	Primary	Secondary			
				<input checked="" type="checkbox"/>	Inundated	<input type="checkbox"/>	Oxidized Root Channels		
				<input checked="" type="checkbox"/>	Saturated w/in upper 12"	<input checked="" type="checkbox"/>	Water Stained		
				<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Local Soil Survey		
				<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	FAC Neutral Test		
				<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	Other		
				<input checked="" type="checkbox"/>	Drainage Pattern				
<b>2. SAPLINGS/SHRUBS</b>				<b>SUMMARY</b>					
Chamaecyparis thyoides		OBL	3	VEGETATION:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present	
Acer rubrum		FAC	2	SOILS:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present	
Clethra alnifolia		FACW	2	HYDROLOGY:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present	
<b>3. VINES</b>									
Smilax rotundifolia		FAC	5						
<b>4. HERBACEOUS</b>									
Percent of Dominant Species that are OBL, FACW or FAC:				85%					
Community Type:				DETERMINATION:					
<input checked="" type="checkbox"/>	PFO1				PHOTOGRAPH: No.58: View looking west along Complex NW-C (MP76.2)				
<input type="checkbox"/>	PEM1								
<input checked="" type="checkbox"/>	PSS1								
<input type="checkbox"/>	SOW								
<input type="checkbox"/>	CW								
<input type="checkbox"/>	UPL								
Classification (4):									
<input checked="" type="checkbox"/>	Hydrophytic								
<input type="checkbox"/>	Non-Hydrophytic								
<b>SOILS</b>									
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)					
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-28	10YR4/1	N/A	N/A	HISTOSOL					
Soil Unit as Mapped (7): At (Atsion sand)									
Soil Classification as Mapped (8):				<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):				<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric				

Station: MP No. 76.2 BORING NO. 59 UPL		Complex NW-C		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator		Cover		Depth to free water in pit: Inches		
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation: Inches		
none						Depth of Surface Water: Inches		
						Wetland Hydrology Present: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
						Indicators:		
						<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
2. SAPLINGS/SHRUBS								
none								
3. VINES								
none								
4. HERBACEOUS				<b>SUMMARY</b>				
LAWN		N/L		5		VEGETATION: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
						SOILS: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
						HYDROLOGY: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				<b>DETERMINATION:</b>				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.59 View looking south along Complex NW-C (MP76.2)				
Classification (4):								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR5/8	N/A	N/A	DUFF				
2-6	7.5YR6/8	10YR 5/8	MANY/DIST	SANDY/LOAM				
6-18	7.5YR6/8	7.5YR4/6	MANY/DIST	SANDY/LOAM				
18-26	7.5YR4/6	N/A	N/A	SANDY/LOAM				
Soil Unit as Mapped (7): DpB (Downer sandy loam, 2-5% slopes)								
Soil Classification as Mapped (8):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric				

Station: MP No. 74.8		Complex: NW-F		Date: 12/20/99	Project No.: JNHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 60 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover	Depth to free water in pit: 3		Inches			
1. <b>CANOPY</b>	Status (2)	Class (3)	Depth to Soil Saturation: 3		Inches			
Acer rubrum	FAC	4	Depth of Surface Water: N/A		Inches			
Betula lenta	FACU	3	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
Pinus rigida	FACU	1	Indicators:		<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern		<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
<b>2. SAPLINGS/SHRUBS</b>								
Acer rubrum	FAC	4						
Vaccinium corymbosum	FACW	3						
Clethra alnifolia	FACW	5						
Ilex glabra	FAC	3						
<b>3. VINES</b>								
				VEGETATION:		<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present	
				SOILS:		<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>				HYDROLOGY:		<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present	
<b>Percent of Dominant Species that are OBL, FACW or FAC:</b>				85%		<b>DETERMINATION:</b>		
				PHOTOGRAPH: No.60: View looking west along Complex NW-F (MP74.8)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-38	10YR4/1	N/A	N/A	HISTOSOL				
<b>Soil Unit as Mapped (7): Ma (Manahawkin muck)</b>								
<b>Soil Classification as Mapped (8):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
<b>Soil Classification as Sampled (9):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

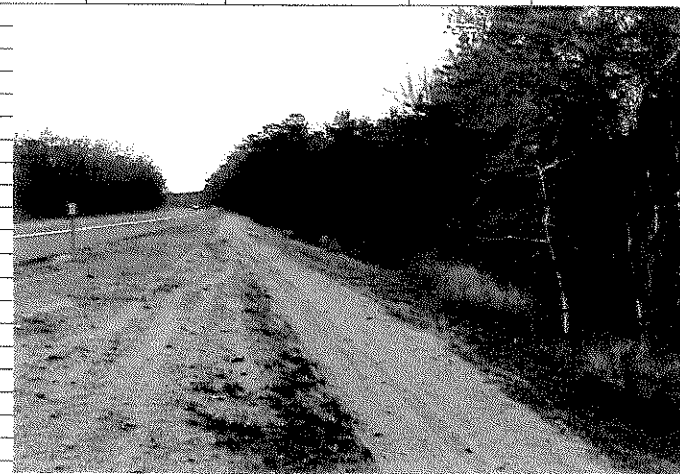


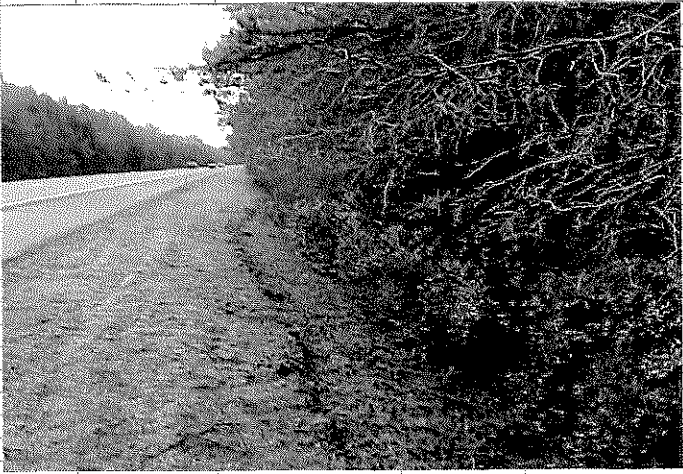
Station: MP No. 73.5 BORING NO. 62 WET		Complex: NW-H		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>																																																	
<b>VEGETATION</b>				<b>HYDROLOGY</b>																																																				
Species (1)	Indicator	Cover	Depth to free water in pit: 9 Inches																																																					
1. CANOPY	Status (2)	Class (3)	Depth to Soil Saturation: 9 Inches																																																					
Pinus rigida	FACU	4	Depth of Surface Water: N/A Inches																																																					
Nyssa sylvatica	FACW	5	Wetland Hydrology Present: YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>																																																					
			Indicators:																																																					
			<table border="0"> <tr> <td><input checked="" type="checkbox"/></td> <td>Inundated</td> <td colspan="4"><b>Primary</b></td> <td colspan="2"><b>Secondary</b></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Saturated w/in upper 12"</td> <td><input checked="" type="checkbox"/></td> <td colspan="4">Oxidized Root Channels</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>Water Marks</td> <td><input type="checkbox"/></td> <td colspan="4">Water Stained</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>Drift Lines</td> <td><input type="checkbox"/></td> <td colspan="4">Local Soil Survey</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>Sediment Deposits</td> <td><input type="checkbox"/></td> <td colspan="4">FAC Neutral Test</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Drainage Pattern</td> <td><input type="checkbox"/></td> <td colspan="4">Other</td> <td></td> </tr> </table>						<input checked="" type="checkbox"/>	Inundated	<b>Primary</b>				<b>Secondary</b>		<input checked="" type="checkbox"/>	Saturated w/in upper 12"	<input checked="" type="checkbox"/>	Oxidized Root Channels					<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Water Stained					<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	Local Soil Survey					<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	FAC Neutral Test					<input checked="" type="checkbox"/>	Drainage Pattern	<input type="checkbox"/>	Other				
<input checked="" type="checkbox"/>	Inundated	<b>Primary</b>				<b>Secondary</b>																																																		
<input checked="" type="checkbox"/>	Saturated w/in upper 12"	<input checked="" type="checkbox"/>	Oxidized Root Channels																																																					
<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Water Stained																																																					
<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	Local Soil Survey																																																					
<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	FAC Neutral Test																																																					
<input checked="" type="checkbox"/>	Drainage Pattern	<input type="checkbox"/>	Other																																																					
<b>2. SAPLINGS/SHRUBS</b>																																																								
Nyssa sylvatica	FACW	4																																																						
Vaccinium corymbosum	FACW	3																																																						
Ilex glabra	FAC	3																																																						
<b>3. VINES</b>				<b>SUMMARY</b>																																																				
				VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present																																																				
<b>4. HERBACEOUS</b>				SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present																																																				
				HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present																																																				
Percent of Dominant Species that are OBL, FACW or FAC: 80%				<b>DETERMINATION:</b>																																																				
				PHOTOGRAPH: No.62: View looking west along Complex NW-H (MP73.5)																																																				
<b>Community Type:</b>																																																								
<input checked="" type="checkbox"/>	PFO1																																																							
<input type="checkbox"/>	PEM1																																																							
<input checked="" type="checkbox"/>	PSS1																																																							
<input type="checkbox"/>	SOW																																																							
<input type="checkbox"/>	CW																																																							
<input type="checkbox"/>	UPL																																																							
<b>Classification (4):</b>																																																								
<input checked="" type="checkbox"/>	Hydrophytic																																																							
<input type="checkbox"/>	Non-Hydrophytic																																																							
<b>SOILS</b>																																																								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTILING COLORS</b>	<b>MOTTILING</b>	<b>TEXTURE (6)</b>																																																				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST																																																					
0-6	10YR4/1	N/A	N/A	DUFF																																																				
6-11	10YR6/1	10YR4/1	MANY/DIST	SANDY/LOAM																																																				
11-18	10YR6/1	10YR6/8	MANY/DIST	SANDY/LOAM																																																				
18-26	10YR6/1	10YR8/8	MANY/DIST	SANDY/LOAM																																																				
Soil Unit as Mapped (7): Ma (Manahawkin muck)																																																								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric																																																					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric																																																					







Station: MP No. 74.8		Complex NW-F		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 61 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
2. SAPLINGS/SHRUBS								
none								
3. VINES								
none								
4. HERBACEOUS								
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				DETERMINATION:				
<input type="checkbox"/>	PFO1			PHOTOGRAPH: No.61 View looking south along Complex NW-F (MP74.8)				
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
Classification (4):								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-7	10YR4/2	N/A	N/A	DUFF				
7-13	7.5YR6/8	10YR 4/6	MANY/DIST	SANDY/LOAM				
13-25	7.5YR6/8	7.5YR4/46	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): LwB (Lakewood sand, 0-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					




Station: <b>MP No. 73.5</b>		Complex <b>NW-H</b>		Date: <b>12/20/99</b>	Project No.: <b>NJHA-00120</b>		Investigator: <b>KK</b> <input checked="" type="checkbox"/> <b>STK</b> <input checked="" type="checkbox"/>		
BORING NO. <b>63 UPL</b>									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches				
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation:	Inches				
none				Depth of Surface Water:	Inches				
				Wetland Hydrology Present:	<b>YES</b> <input type="checkbox"/> <b>NO</b> <input checked="" type="checkbox"/>				
				Indicators:	<b>Primary</b>	<b>Secondary</b>			
<b>2. SAPLINGS/SHRUBS</b>					<input type="checkbox"/> Inundated	<input type="checkbox"/> Oxidized Root Channels			
none					<input type="checkbox"/> Saturated w/in upper 12"	<input type="checkbox"/> Water Stained			
					<input type="checkbox"/> Water Marks	<input type="checkbox"/> Local Soil Survey			
					<input type="checkbox"/> Drift Lines	<input type="checkbox"/> FAC Neutral Test			
<b>3. VINES</b>					<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Other			
none					<input type="checkbox"/> Drainage Pattern				
				<b>SUMMARY</b>					
<b>4. HERBACEOUS</b>				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present			
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present			
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present			
Percent of Dominant Species that are OBL, FACW or FAC:			0%						
<b>Community Type:</b>				<b>DETERMINATION:</b>					
<input type="checkbox"/>	PFO1	PHOTOGRAPH: No.63 View looking south along Complex NW-H (MP73.5)							
<input type="checkbox"/>	PEM1								
<input type="checkbox"/>	PSS1								
<input type="checkbox"/>	SOW								
<input type="checkbox"/>	CW								
<input checked="" type="checkbox"/>	UPL								
<b>Classification (4):</b>									
<input type="checkbox"/>	Hydrophytic								
<input checked="" type="checkbox"/>	Non-Hydrophytic								
<b>SOILS</b>									
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>					
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST	DUFF					
0-7	10YR4/3	N/A	N/A	SANDY/LOAM					
7-13	10YR 6/6	10YR4/3	MANY/DIST	SANDY/LOAM					
13-25	7.5YR6/8	10YR4/3	MANY/DIST						
<b>Soil Unit as Mapped (7): LhA (Lakehurst sand, 0-3% slopes)</b>									
<b>Soil Classification as Mapped (8):</b>		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric						
<b>Soil Classification as Sampled (9):</b>		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric						

Station: MP No. 72.8		Complex: NW-I		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 64 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 0	Inches			
Nyssa sylvatica		FACW	5	Depth of Surface Water: 2	Inches			
Acer rubrum		FAC	4	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern		<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
<b>2. SAPLINGS/SHRUBS</b>								
Chamaecyparis thyoides		OBL	5					
Nyssa sylvatica		FACW	4					
Acer rubrum		FAC	5					
Clethra alnifolia		FACW	3					
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia		FAC	2	VEGETATION:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
				SOILS:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
				HYDROLOGY:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
<b>4. HERBACEOUS</b>								
Percent of Dominant Species that are OBL, FACW or FAC:				100%				
Community Type:				<b>DETERMINATION:</b> PHOTOGRAPH: No. 64: View looking west along Complex NW-I (MP72.8)				
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
Classification (4):								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST	HISTOSOL				
0-30	10YR4/1	N/A	N/A					
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Station: MP No. 72.8		Complex NW-I		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 65 UPL								

VEGETATION				HYDROLOGY			
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches		
none				Depth of Surface Water:	Inches		
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
				Indicators:	Primary	Secondary	
2. SAPLINGS/SHRUBS					Inundated	<input type="checkbox"/>	Oxidized Root Channels
none					Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained
					Water Marks	<input type="checkbox"/>	Local Soil Survey
					Drift Lines	<input type="checkbox"/>	FAC Neutral Test
3. VINES					Sediment Deposits	<input type="checkbox"/>	Other
none					Drainage Pattern	<input type="checkbox"/>	
4. HERBACEOUS				<b>SUMMARY</b>			
LAWN		N/L	5	VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present	
				SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present	
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				0%			
				<b>DETERMINATION:</b>			
Community Type:				PHOTOGRAPH: No.65 View looking south along Complex NW-I (MP72.8)			
<input type="checkbox"/>	PFO1						
<input type="checkbox"/>	PEM1						
<input type="checkbox"/>	PSS1						
<input type="checkbox"/>	SOW						
<input type="checkbox"/>	CW						
<input checked="" type="checkbox"/>	UPL						
Classification (4):							
<input type="checkbox"/>	Hydrophytic						
<input checked="" type="checkbox"/>	Non-Hydrophytic						
<b>SOILS</b>							
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)			
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST				
0-7	10YR4/3	N/A	N/A	DUFF			
7-13	10YR 6/6	10YR4/3	MANY/DIST	SANDY/LOAM			
13-25	7.5YR6/8	10YR4/3	MANY/DIST	SANDY/LOAM			
Soil Unit as Mapped (7): LhA (Lakehurst sand, 0-3% slopes)							
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric				

Station: MP No. 72.1		Complex: NW-J		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 66 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover	Depth to free water in pit: 0 Inches					
1. CANOPY	Status (2)	Class (3)	Depth to Soil Saturation: 0 Inches					
Chamaecyparis thyoides	OBL	5	Depth of Surface Water: 2.5 Inches					
Pinus rigida	FACU	1	Wetland Hydrology Present: YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>					
			Indicators:			<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern		
						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
<b>2. SAPLINGS/SHRUBS</b>								
Chamaecyparis thyoides	OBL	5						
Ilex glabra	FACW	3						
<b>3. VINES</b>								
<b>4. HERBACEOUS</b>								
Percent of Dominant Species that are OBL, FACW or FAC:			75%	<b>SUMMARY</b> VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present				
Community Type:				<b>DETERMINATION:</b> PHOTOGRAPH: No.66: View looking west along Complex NW-J (MP72.1)				
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
Classification (4):								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-34	10YR4/2	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					




Station: MP No. 72.1		Complex NW-J		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 67 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
2. SAPLINGS/SHRUBS				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
none						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES								
none								
4. HERBACEOUS				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
Community Type:				DETERMINATION:				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.67 View looking south along Complex NW-J (MP72.1)				
Classification (4):								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-7	10YR4/3	N/A	N/A	DUFF				
7-13	10YR 6/6	10YR4/3	MANY/DIST	SANDY/LOAM				
13-25	7.5YR6/8	10YR4/4	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): LhA (Lakehurst sand, 0-3% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					

Station: MP No. 71.8		Complex: NW-K		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 68 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 0		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation: 0		Inches	
Chamaecyparis thyoides		OBL		4		Depth of Surface Water: N/A		Inches	
Acer rubrum		FAC		3		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern	
<b>2. SAPLINGS/SHRUBS</b>								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
Chamaecyparis thyoides		OBL		5					
Vaccinium corymbosum		FACW		3					
Clethra alnifolia		FACW		3					
<b>3. VINES</b>									
<b>4. HERBACEOUS</b>									
Carex stricta		OBL		4					
Percent of Dominant Species that are OBL, FACW or FAC:				100%		<b>DETERMINATION:</b> PHOTOGRAPH: No.68: View looking west along Complex NW-K (MP71.8)			
<b>Community Type:</b>									
<input checked="" type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input checked="" type="checkbox"/> PSS1 <input checked="" type="checkbox"/> SOW <input type="checkbox"/> CW <input type="checkbox"/> UPL									
<b>Classification (4):</b>									
<input checked="" type="checkbox"/> Hydrophytic <input type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-28		10YR4/1		N/A		N/A		HISTOSOL	
Soil Unit as Mapped (7): Ma (Manahawkin muck)									
Soil Classification as Mapped (8):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric					





Station: MP No. 71.8		Complex NW-K		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 69 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
2. SAPLINGS/SHRUBS				Indicators:		<input type="checkbox"/> Primary <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
none						<input type="checkbox"/> Secondary <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES								
none								
4. HERBACEOUS				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				DETERMINATION:				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.69 View looking south along Complex NW-K (MP71.8)				
Classification (4):								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR2/1	N/A	N/A	DUFF				
2-12	7.5YR 6/8	10YR2/1	MANY/DIST	SANDY/LOAM				
12-24	7.5YR6/8	7.5YR4/4	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					





Station: MP No. 70.9		Complex: NW-L		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 70 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0	Inches			
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 0	Inches			
Chamaecyparis thyoides		OBL	4	Depth of Surface Water: 2	Inches			
Acer rubrum		FAC	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	<b>Primary</b>		<b>Secondary</b>	
					<input type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels	
					<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
<b>2. SAPLINGS/SHRUBS</b>					<input checked="" type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Chamaecyparis thyoides		OBL	5		<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
Vaccinium corymbosum		FACW	3		<input type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
Ilex glabra		FACW	3		<input checked="" type="checkbox"/> Drainage Pattern			
<b>3. VINES</b>				<b>SUMMARY</b>				
				VEGETATION:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>				SOILS:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Leersia virginica		FACW	4	HYDROLOGY:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
<b>Percent of Dominant Species that are OBL, FACW or FAC:</b>			100%	<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.70: View looking west along Complex NW-L (MP70.9)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-22	10YR4/1	N/A	N/A	HISTOSOL				
<b>Soil Unit as Mapped (7):</b> Ma (Manahawkin muck)								
<b>Soil Classification as Mapped (8):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
<b>Soil Classification as Sampled (9):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 70.9 BORING NO. 71 UPL		Complex NW-L	Date: 12/20/99	Project No.: NJHA-00120	Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>
<b>VEGETATION</b>			<b>HYDROLOGY</b>		
Species (1)	Indicator	Cover	Depth to free water in pit: Inches		
1. CANOPY	Status (2)	Class (3)	Depth to Soil Saturation: Inches		
none			Depth of Surface Water: Inches		
			Wetland Hydrology Present: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
			Indicators: Primary Secondary		
2. SAPLINGS/SHRUBS			<input type="checkbox"/> Inundated <input type="checkbox"/> Oxidized Root Channels		
none			<input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Stained		
			<input type="checkbox"/> Water Marks <input type="checkbox"/> Local Soil Survey		
			<input type="checkbox"/> Drift Lines <input type="checkbox"/> FAC Neutral Test		
3. VINES			<input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Other		
none			<input type="checkbox"/> Drainage Pattern		
			<b>SUMMARY</b>		
4. HERBACEOUS			VEGETATION: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
LAWN	N/L	5	SOILS: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
			HYDROLOGY: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC: 0%					
<b>Community Type:</b>			<b>DETERMINATION:</b>		
<input type="checkbox"/> PFO1			PHOTOGRAPH: No.71 View looking south along Complex NW-L (MP70.9)		
<input type="checkbox"/> PEM1					
<input type="checkbox"/> PSS1					
<input type="checkbox"/> SOW					
<input type="checkbox"/> CW					
<input checked="" type="checkbox"/> UPL					
<b>Classification (4):</b>					
<input type="checkbox"/> Hydrophytic					
<input checked="" type="checkbox"/> Non-Hydrophytic					
<b>SOILS</b>					
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)	
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST		
0-6	10YR4/4	N/A	N/A	DUFF	
6-17	10YR 6/8	7.5YR6/6	MANY/DIST	SANDY/LOAM	
17-25.5	7.5YR6/6	10YR 6/8	MANY/DIST	SANDY/LOAM	
Soil Unit as Mapped (7): Ma (Manahawkin muck)					
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric		
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric		



Station: <b>MP No. 65.8</b>		Complex: <b>NW-P</b>		Date: <b>12/20/99</b>	Project No.: <b>NJHA-00120</b>		Investigator: <b>KK</b> <input checked="" type="checkbox"/> <b>STK</b> <input checked="" type="checkbox"/>	
BORING NO. 72 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0		Inches		
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 0		Inches		
Chamaecyparis thyoides		OBL	4	Depth of Surface Water: 1		Inches		
Acer rubrum		FAC	2	Wetland Hydrology Present:		<b>YES</b> <input checked="" type="checkbox"/> <b>NO</b> <input checked="" type="checkbox"/>		
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern		
						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
<b>2. SAPLINGS/SHRUBS</b>								
Chamaecyparis thyoides		OBL	5					
Vaccinium corymbosum		FACW	3					
Ilex glabra		FACW	2					
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia		FAC	4	VEGETATION:		<input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present		
				SOILS:		<input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present		
<b>4. HERBACEOUS</b>				HYDROLOGY:		<input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present		
Leersia virginica		FACW	4					
Percent of Dominant Species that are OBL, FACW or FAC:				100%				
				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.72: View looking west along Complex NW-P (MP65.8)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-22	10YR4/1	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): <b>Ma</b> (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					


Station: MP No. 65.8		Complex NW-P		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 73 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
2. SAPLINGS/SHRUBS				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
none						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES								
none								
4. HERBACEOUS				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
				SOILS:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
Community Type:				DETERMINATION:				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.73 View looking south along Complex NW-P (MP65.8)				
Classification (4):								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-6	10YR4/2	N/A	N/A	DUFF				
6-17	10YR 6/5	10YR4/3	MANY/DIST	SANDY/LOAM				
17-25.5	7.5YR6/6	7.5YR5/3	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): DoA (Downer loamy sand, 0-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric						
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric						

Station: MP No. 65.7		Complex: MN-P		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 74 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover		Depth to free water in pit: 0	Inches			
1. CANOPY	Status (2)	Class (3)		Depth to Soil Saturation: 0	Inches			
Chamaecyparis thyoides	OBL	5		Depth of Surface Water: 1	Inches			
Acer rubrum	FAC	3		Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
					<input type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels	
					<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
2. SAPLINGS/SHRUBS					<input checked="" type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Chamaecyparis thyoides	OBL	5			<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
Vaccinium corymbosum	FACW	3			<input type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
Ilex glabra	FACW	2			<input checked="" type="checkbox"/> Drainage Pattern			
3. VINES				<b>SUMMARY</b>				
Smilax rotundifolia	FAC	4		VEGETATION:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
				SOILS:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
4. HERBACEOUS				HYDROLOGY:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Leersia virginica	FACW	4						
Percent of Dominant Species that are OBL, FACW or FAC:			100%	<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.74: View looking southeast along Complex MN-P (MP65.7)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-32	10YR4/1	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 62.4		Complex: NW-Z		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 75 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 2		Inches	
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation: 2		Inches	
Chamaecyparis thyoides		OBL		5		Depth of Surface Water: N/A		Inches	
Acer rubrum		FAC		4		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
Betula lenta		FACU		3		Indicators:		Primary Secondary	
Pinus rigida		FACU		3		<input type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels	
						<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
						<input checked="" type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
						<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
						<input type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
						<input checked="" type="checkbox"/> Drainage Pattern			
<b>2. SAPLINGS/SHRUBS</b>				<b>SUMMARY</b>					
Chamaecyparis thyoides		OBL		5		VEGETATION: <input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Vaccinium corymbosum		FACW		3		SOILS: <input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Ilex glabra		FACW		2		HYDROLOGY: <input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
<b>3. VINES</b>									
Smilax rotundifolia		FAC		4					
<b>4. HERBACEOUS</b>									
Leersia virginica		FACW		4		<b>DETERMINATION:</b>			
						PHOTOGRAPH: No.75: View looking west along Complex NW-Z (MP62.4)			
Percent of Dominant Species that are OBL, FACW or FAC:				100%					
<b>Community Type:</b>									
<input checked="" type="checkbox"/> PFO1									
<input type="checkbox"/> PEM1									
<input checked="" type="checkbox"/> PSS1									
<input checked="" type="checkbox"/> SOW									
<input type="checkbox"/> CW									
<input type="checkbox"/> UPL									
<b>Classification (4):</b>									
<input checked="" type="checkbox"/> Hydrophytic									
<input type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-14		10YR4/1		N/A		N/A		DUFF	
14-16		10YR4/3		10YR4/1		MANY/DIST		SANDY/LOAM	
16-24		10YR4/3		7.5YR6/4		MANY/DIST		SANDY/LOAM	
<b>Soil Unit as Mapped (7): Ma (Manahawkin muck)</b>									
<b>Soil Classification as Mapped (8):</b>		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					
<b>Soil Classification as Sampled (9):</b>		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					



Station: MP No. 62.4		Complex NW-Z		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>		
BORING NO. 76 UPL									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches			
none				Depth of Surface Water:		Inches			
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
2. SAPLINGS/SHRUBS				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern			
none						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other			
3. VINES									
none									
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>					
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present	
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present	
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:			0%						
<b>Community Type:</b>				<b>DETERMINATION:</b>					
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.76 View looking south along Complex NW-Z (MP62.4)					
<b>Classification (4):</b>									
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>						<b>TEXTURE (6)</b>
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-4	10YR4/2	N/A	N/A						DUFF
4-11	10YR 6/8	7.5YR6/6	MANY/DIST						SANDY/LOAM
11-24	7.5YR6/6	10YR 6/8	MANY/DIST						SANDY/LOAM
Soil Unit as Mapped (7): EvB (Evesboro sand, 0-5% slopes)									
Soil Classification as Mapped (8):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric					


Station: MP No. 62.4		Complex: MN-K		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 77 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover		Depth to free water in pit:1	Inches			
<b>1. CANOPY</b>	Status (2)	Class (3)		Depth to Soil Saturation: 1	Inches			
Chamaecyparis thyoides	OBL	5		Depth of Surface Water: N/A	Inches			
Acer rubrum	FAC	4		Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
Pinus rigida	FACU	3		Indicators:	Primary		Secondary	
					<input type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels	
					<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
<b>2. SAPLINGS/SHRUBS</b>					<input type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Chamaecyparis thyoides	OBL	5			<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
Acer rubrum	FAC	4			<input type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
Pinus rigida	FACU	3			<input checked="" type="checkbox"/> Drainage Pattern			
Clethra alnifolia	FACW	4						
				<b>SUMMARY</b>				
<b>3. VINES</b>				VEGETATION:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
				SOILS:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>				HYDROLOGY:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				71%	<b>DETERMINATION:</b>			
				PHOTOGRAPH: No.77: View looking southeast along Complex MN-K (MP62.4)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-16	10YR4/1	N/A	N/A	DUFF				
16-20	10YR4/3	10YR4/1	MANY/DIST	SANDY/LOAM				
20-28	10YR4/3	7.5YR6/4	MANY/DIST	SANDY/LOAM				
<b>Soil Unit as Mapped (7): Ma (Manahawkin muck)</b>								
<b>Soil Classification as Mapped (8):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
<b>Soil Classification as Sampled (9):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					





Station: MP No. 60.1		Complex: NW-DD		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 78 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover		Depth to free water in pit: 0	Inches			
<b>1. CANOPY</b>	Status (2)	Class (3)		Depth to Soil Saturation: 0	Inches			
Chamaecyparis thyoides	OBL	5		Depth of Surface Water: 2	Inches			
Acer rubrum	FAC	4		Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	<b>Primary</b>		<b>Secondary</b>	
				<input checked="" type="checkbox"/>	Inundated	<input type="checkbox"/>	Oxidized Root Channels	
<b>2. SAPLINGS/SHRUBS</b>				<input checked="" type="checkbox"/>	Saturated w/in upper 12"	<input checked="" type="checkbox"/>	Water Stained	
Chamaecyparis thyoides	OBL	5		<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Local Soil Survey	
Acer rubrum	FAC	4		<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	FAC Neutral Test	
Ilex glabra	FACW	3		<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	Other	
				<input checked="" type="checkbox"/>	Drainage Pattern			
<b>3. VINES</b>				<b>SUMMARY</b>				
				VEGETATION:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
<b>4. HERBACEOUS</b>				SOILS:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
				HYDROLOGY:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:		100%		<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.78: View looking east along Complex MNW-DD (MP60.1)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-37	10YR2/1	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):	<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric						
Soil Classification as Sampled (9):	<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric						



Station: MP No. 60.1		NW-DD		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 79 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
2. SAPLINGS/SHRUBS						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES								
none								
4. HERBACEOUS				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
Community Type:				DETERMINATION:				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.79 View looking south along Complex NW-DD (MP60.1)				
Classification (4):								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/2	N/A	N/A	DUFF				
2-3	10YR 6/6	10YR4/2	MANY/DIST	SANDY/LOAM				
3-24	10YR 6/6	7.5YR5/8	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					


Station: MP No. 57.3		Complex: NW-II		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 80 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 1	Inches			
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 1	Inches			
Chamaecyparis thyoides		OBL	5	Depth of Surface Water: N/A	Inches			
Acer rubrum		FAC	4	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/>		NO <input checked="" type="checkbox"/>	
				Indicators:	<b>Primary</b>		<b>Secondary</b>	
					<input checked="" type="checkbox"/> Inundated	<input type="checkbox"/> Oxidized Root Channels		
<b>2. SAPLINGS/SHRUBS</b>					<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/> Water Stained		
Chamaecyparis thyoides		OBL	5		<input type="checkbox"/> Water Marks	<input type="checkbox"/> Local Soil Survey		
Acer rubrum		FAC	4		<input type="checkbox"/> Drift Lines	<input type="checkbox"/> FAC Neutral Test		
Ilex glabra		FACW	3		<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Other		
Vaccinium corymbosum		FACW	2		<input checked="" type="checkbox"/> Drainage Pattern			
				<b>SUMMARY</b>				
<b>3. VINES</b>				VEGETATION:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
				SOILS:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
<b>4. HERBACEOUS</b>				HYDROLOGY:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:			100%	<b>DETERMINATION:</b>				
				PHOTOGRAPH: No. 80: View looking west along Complex NW-II (MP57.3)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-35	10YR4/1	N/A	N/A	HISTOSOL				
<b>Soil Unit as Mapped (7): Ma (Manahawkin muck)</b>								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					





Station: MP No. 57.3		COMPLEX: NW-II		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 81 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
2. SAPLINGS/SHRUBS					Inundated	<input type="checkbox"/>	Oxidized Root Channels	<input type="checkbox"/>
none					Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	<input type="checkbox"/>
					Water Marks	<input type="checkbox"/>	Local Soil Survey	<input type="checkbox"/>
					Drift Lines	<input type="checkbox"/>	FAC Neutral Test	<input type="checkbox"/>
3. VINES					Sediment Deposits	<input type="checkbox"/>	Other	<input type="checkbox"/>
none					Drainage Pattern	<input type="checkbox"/>		
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/>	PFO1			PHOTOGRAPH: No.81 View looking south along Complex NW-II (MP57.3)				
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTILING COLORS	MOTTILING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-12	10YR4/4	N/A	N/A	DUFF				
12-18	10YR4/4	7.5YR6/8	MANY/DIST	SANDY/LOAM				
18-24	10YR4/4	N/A	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): WoB (Woodmansie sand, 0-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 56		Complex: NW-LL		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 82 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:0	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:0	Inches			
Pinus rigida		FACU	5	Depth of Surface Water: 1/2	Inches			
Quercus palustris		FAC	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/>	NO <input checked="" type="checkbox"/>		
Nyssa sylvatica		FACW	2	Indicators:	<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern			<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other
<b>2. SAPLINGS/SHRUBS</b>								
Nyssa sylvatica		FACW	5					
Acer rubrum		FAC	4					
Vaccinium corymbosum		FACW	2					
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia		FAC	4	VEGETATION:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
				SOILS:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
				HYDROLOGY:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
<b>4. HERBACEOUS</b>								
Percent of Dominant Species that are OBL, FACW or FAC:				83%				
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input checked="" type="checkbox"/>	PFO1				PHOTOGRAPH: No.82: View looking west along Complex NW-LL (MP56)			
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-27.5	10YR2/1	N/A	N/A	HISTOSOL				
Soil Unit as Mapped (7): HaA (Hammonton loamy sand, 0-5% slopes)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

Station: MP No. 56		COMPLEX: NW-LL		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>		
BORING NO. 83 UPL										
<b>VEGETATION</b>				<b>HYDROLOGY</b>						
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches		
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches		
none						Depth of Surface Water:		Inches		
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
2. SAPLINGS/SHRUBS								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES										
none										
4. HERBACEOUS				<b>SUMMARY</b>						
LAWN		N/L		5		VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
						SOILS:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
						HYDROLOGY:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				0%						
Community Type:				DETERMINATION:						
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.83 View looking south along Complex NW-LL (MP56)						
Classification (4):										
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic										
<b>SOILS</b>										
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING							TEXTURE (6)
(inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST							
0-12	10YR4/2	N/A	N/A	DUFF						
12-18	7.5YR6/6	10YR4/2	PROM/DIST	SANDY/LOAM						
18-24	7.5YR6/8	10YR4/4	PROM/DIST	SANDY/LOAM						
Soil Unit as Mapped (7): HaA (Hammononton loamy sand, 0-5% slopes)										
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric								
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric								

Station: MP No. 55		Complex: SW-A		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 84 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)	Indicator	Cover		Depth to free water in pit:10	Inches				
1. CANOPY	Status (2)	Class (3)		Depth to Soil Saturation:10	Inches				
Pinus rigida	FACU	5		Depth of Surface Water: N/A	Inches				
Quercus palustris	FACU	3		Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>				
Nyssa sylvatica	FACW	2		Indicators:	Primary			Secondary	
					<input checked="" type="checkbox"/> Inundated			<input type="checkbox"/> Oxidized Root Channels	
					<input checked="" type="checkbox"/> Saturated w/in upper 12"			<input checked="" type="checkbox"/> Water Stained	
					<input type="checkbox"/> Water Marks			<input type="checkbox"/> Local Soil Survey	
					<input type="checkbox"/> Drift Lines			<input type="checkbox"/> FAC Neutral Test	
					<input type="checkbox"/> Sediment Deposits			<input type="checkbox"/> Other	
					<input checked="" type="checkbox"/> Drainage Pattern				
<b>2. SAPLINGS/SHRUBS</b>				<b>SUMMARY</b>					
Nyssa sylvatica	FACW	5		VEGETATION:	<input checked="" type="checkbox"/> Present			<input type="checkbox"/> Not Present	
Acer rubrum	FAC	4		SOILS:	<input checked="" type="checkbox"/> Present			<input type="checkbox"/> Not Present	
Vaccinium corymbosum	FACW	2		HYDROLOGY:	<input checked="" type="checkbox"/> Present			<input type="checkbox"/> Not Present	
Ilex glabra	FACW	3							
Quercus palustris	FACU	3							
<b>3. VINES</b>				<b>DETERMINATION:</b>					
Smilax rotundifolia	FAC	4		PHOTOGRAPH: No.84: View looking west along Complex SW-A (MP55)					
<b>4. HERBACEOUS</b>									
Percent of Dominant Species that are OBL, FACW or FAC:			66%						
<b>Community Type:</b>									
<input checked="" type="checkbox"/>	PFO1								
<input type="checkbox"/>	PEM1								
<input checked="" type="checkbox"/>	PSS1								
<input type="checkbox"/>	SOW								
<input type="checkbox"/>	CW								
<input type="checkbox"/>	UPL								
<b>Classification (4):</b>									
<input checked="" type="checkbox"/>	Hydrophytic								
<input type="checkbox"/>	Non-Hydrophytic								
<b>SOILS</b>									
DEPTH	MATRIX	MOTTILING COLORS	MOTTILING	TEXTURE (6)					
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-14	10YR4/1	N/A	N/A	HISTOSOL					
14-26	10YR4/1	10YR6/1	MANY/DIST	SANDY/LOAM					
<b>Soil Unit as Mapped (7): At (Atsion sand)</b>									
<b>Soil Classification as Mapped (8):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric						
<b>Soil Classification as Sampled (9):</b>		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric						

Station: MP No. 55		COMPLEX: SW-A		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>							
BORING NO. 85 UPL															
<b>VEGETATION</b>				<b>HYDROLOGY</b>											
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches							
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches							
none						Depth of Surface Water:		Inches							
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>							
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern							
2. SAPLINGS/SHRUBS								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other							
none															
3. VINES															
none															
4. HERBACEOUS				<b>SUMMARY</b>											
LAWN		N/L		5		VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present							
						SOILS:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present							
						HYDROLOGY:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present							
Percent of Dominant Species that are OBL, FACW or FAC:				0%											
Community Type:				DETERMINATION:											
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.85 View looking south along Complex SW-A (MP55)											
Classification (4):															
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic															
<b>SOILS</b>															
<b>DEPTH</b>		<b>MATRIX</b>								<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)								(Munsell Moist)		ABUNDANCE/CONTRAST			
0-12		10YR4/1		N/A		N/A		DUFF							
12-18		7.5YR6/8		10YR4/1		PROM/DIST		SANDY/LOAM							
18-24		10YR6/8		N/A		N/A		SANDY/LOAM							
Soil Unit as Mapped (7): At (Atsion sand)															
Soil Classification as Mapped (8):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric											
Soil Classification as Sampled (9):				<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric											



Station: MP No. 54.9		Complex: SM-DDDD		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 86 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 0		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation: 0		Inches	
Magnolia virginiana		FACW		5		Depth of Surface Water: 2		Inches	
Acer rubrum		FACW		4		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern	
<b>2. SAPLINGS/SHRUBS</b>								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
Magnolia virginiana		FACW		5					
Acer rubrum		FACW		4					
Clethra alnifolia		FACW		3					
<b>3. VINES</b>									
Smilax rotundifolia		FAC		4					
<b>4. HERBACEOUS</b>									
Leersia virginica		FACW		3					
				<b>SUMMARY</b>					
				VEGETATION:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
				SOILS:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
				HYDROLOGY:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
<b>Percent of Dominant Species that are OBL, FACW or FAC:</b>				100%		<b>DETERMINATION:</b>			
				PHOTOGRAPH: No.86: View looking southeast along Complex SM-DDDD (MP54.9)					
<b>Community Type:</b>									
<input checked="" type="checkbox"/>		PFO1							
<input type="checkbox"/>		PEM1							
<input checked="" type="checkbox"/>		PSS1							
<input type="checkbox"/>		SOW							
<input type="checkbox"/>		CW							
<input type="checkbox"/>		UPL							
<b>Classification (4):</b>									
<input checked="" type="checkbox"/>		Hydrophytic							
<input type="checkbox"/>		Non-Hydrophytic							
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-32		10YR4/1		N/A		N/A		HISTOSOL	
<b>Soil Unit as Mapped (7): At (Atsion sand)</b>									
<b>Soil Classification as Mapped (8):</b>				<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric			
<b>Soil Classification as Sampled (9):</b>				<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric			



Station: MP No. 55.3		Complex: NE-A		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 87 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 10		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation: 10		Inches	
Chamaecyparis thyoides		OBL		5		Depth of Surface Water: N/A		Inches	
Acer rubrum		FAC		4		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
Pinus rigida		FACU		1		Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern	
								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
<b>2. SAPLINGS/SHRUBS</b>									
Chamaecyparis thyoides		OBL		5					
Acer rubrum		FAC		4					
Ilex glabra		FACW		3					
Vaccinium corymbosum		FACW		2					
				<b>SUMMARY</b>					
<b>3. VINES</b>				VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present					
<b>4. HERBACEOUS</b>									
Percent of Dominant Species that are OBL, FACW or FAC:				85%		<b>DETERMINATION:</b> PHOTOGRAPH: No.87: View looking east along Complex NE-A (MP55.3)			
<b>Community Type:</b>									
<input checked="" type="checkbox"/>		PFO1							
<input type="checkbox"/>		PEM1							
<input checked="" type="checkbox"/>		PSS1							
<input type="checkbox"/>		SOW							
<input type="checkbox"/>		CW							
<input type="checkbox"/>		UPL							
<b>Classification (4):</b>									
<input checked="" type="checkbox"/>		Hydrophytic							
<input type="checkbox"/>		Non-Hydrophytic							
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-6		10YR4/2		N/A		N/A		HISTOSOL	
6-14		10YR4/2		10YR6/2		MANY/DIST		SANDY/LOAM	
14-24		10YR6/2		10YR4/2		MANY/DIST		SANDY/LOAM	
Soil Unit as Mapped (7): At (Atsion sand)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					




Station: MP No. 55.3		COMPLEX: NE-A		Date: 12/20/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 88 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
				Indicators:		Primary		Secondary
2. SAPLINGS/SHRUBS				<input type="checkbox"/>		Inundated	<input type="checkbox"/>	Oxidized Root Channels
none				<input type="checkbox"/>		Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained
				<input type="checkbox"/>		Water Marks	<input type="checkbox"/>	Local Soil Survey
				<input type="checkbox"/>		Drift Lines	<input type="checkbox"/>	FAC Neutral Test
3. VINES				<input type="checkbox"/>		Sediment Deposits	<input type="checkbox"/>	Other
none				<input type="checkbox"/>		Drainage Pattern		
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION: <input type="checkbox"/>		Present	<input checked="" type="checkbox"/>	Not Present
LAWN		N/L	5	SOILS: <input type="checkbox"/>		Present	<input checked="" type="checkbox"/>	Not Present
				HYDROLOGY: <input type="checkbox"/>		Present	<input checked="" type="checkbox"/>	Not Present
Percent of Dominant Species that are OBL, FACW or FAC: 0%								
Community Type:				DETERMINATION:				
<input type="checkbox"/> PFO1				PHOTOGRAPH: No.88 View looking south along Complex NE-A (MP55.3)				
<input type="checkbox"/> PEM1								
<input type="checkbox"/> PSS1								
<input type="checkbox"/> SOW								
<input type="checkbox"/> CW								
<input checked="" type="checkbox"/> UPL								
Classification (4):								
<input type="checkbox"/> Hydrophytic								
<input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/3	N/A	N/A	DUFF				
2-11	7.5YR6/8	N/A	N/A	SANDY/LOAM				
11-18	7.5YR6/8	10YR5/8	PROM/DIST	SANDY/LOAM				
18-24	10YR5/8	N/A	N/A	SANDY/LOAM				
Soil Unit as Mapped (7): WkA (Woodstown loamy sand, 0-2% slopes)								
Soil Classification as Mapped (8): <input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric								
Soil Classification as Sampled (9): <input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric								




Station: MP No. 56		Complex: NE-C		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 89 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 0		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation: 0		Inches	
Pinus rigida		FACU		3		Depth of Surface Water: 2		Inches	
Nyssa sylvatica		FACW		3		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/>	
				Indicators:		<b>Primary</b>		<b>Secondary</b>	
				<input checked="" type="checkbox"/>		Inundated		<input type="checkbox"/> Oxidized Root Channels	
				<input checked="" type="checkbox"/>		Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
				<input type="checkbox"/>		Water Marks		<input type="checkbox"/> Local Soil Survey	
				<input type="checkbox"/>		Drift Lines		<input type="checkbox"/> FAC Neutral Test	
				<input type="checkbox"/>		Sediment Deposits		<input type="checkbox"/> Other	
				<input checked="" type="checkbox"/>		Drainage Pattern			
<b>2. SAPLINGS/SHRUBS</b>									
Pinus rigida		FACU		3					
Nyssa sylvatica		FACW		4					
Vaccinium corymbosum		FACW		4					
<b>3. VINES</b>				<b>SUMMARY</b>					
Smilax rotundifolia		FAC		4		VEGETATION: <input checked="" type="checkbox"/>		<b>Present</b>	
						SOILS: <input checked="" type="checkbox"/>		<b>Present</b>	
						HYDROLOGY: <input checked="" type="checkbox"/>		<b>Present</b>	
								<b>Not Present</b>	
								<b>Not Present</b>	
								<b>Not Present</b>	
<b>4. HERBACEOUS</b>									
Scirpus cyperinus		FACW		3					
				<b>DETERMINATION:</b>					
Percent of Dominant Species that are OBL, FACW or FAC:				80%		PHOTOGRAPH: No. 89: View looking east along Complex NE-C (MP56)			
<b>Community Type:</b>									
<input checked="" type="checkbox"/>		PFO1							
<input type="checkbox"/>		PEM1							
<input checked="" type="checkbox"/>		PSS1							
<input type="checkbox"/>		SOW							
<input type="checkbox"/>		CW							
<input type="checkbox"/>		UPL							
<b>Classification (4):</b>									
<input checked="" type="checkbox"/>		Hydrophytic							
<input type="checkbox"/>		Non-Hydrophytic							
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-37		10YR2/1		N/A		N/A		HISTOSOL	
Soil Unit as Mapped (7): At (Atsion sand)									
Soil Classification as Mapped (8):				<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric			
Soil Classification as Sampled (9):				<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric			



Station: MP No. 56		COMPLEX: NE-C		Date: 12/20/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>						
BORING NO. 90 UPL														
<b>VEGETATION</b>					<b>HYDROLOGY</b>									
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches						
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches						
none						Depth of Surface Water:		Inches						
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>						
2. SAPLINGS/SHRUBS						Indicators:		<input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern						
none								<input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other						
3. VINES														
none														
<b>4. HERBACEOUS</b>					<b>SUMMARY</b>									
LAWN		N/L		5		VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present						
						SOILS:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present						
						HYDROLOGY:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present						
Percent of Dominant Species that are OBL, FACW or FAC:				0%										
<b>Community Type:</b>					<b>DETERMINATION:</b>									
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL					PHOTOGRAPH: No.90 View looking north along Complex NE-C (MP56)									
<b>Classification (4):</b>														
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic														
<b>SOILS</b>														
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>						<b>MOTTLING</b>		<b>TEXTURE (6)</b>		
(Inches)		COLOR (5)		(Munsell Moist)						ABUNDANCE/CONTRAST				
0-1		10YR4/3		N/A						N/A		DUFF		
1-16		7.5YR6/8		N/A						N/A		SANDY/LOAM		
16-24		7.5YR6/8		10YR5/4						MANY/DIST		SANDY/LOAM		
Soil Unit as Mapped (7): DoA (Downer loamy sand, 0-5% slopes)														
Soil Classification as Mapped (8):					<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric									
Soil Classification as Sampled (9):					<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric									

Station: <b>MP No. 57</b>		<b>COMPLEX: NE-E</b>		Date: 12/21/99		Project No.: NJHA-00120		Investigator: <b>KK</b> <input checked="" type="checkbox"/> <b>STK</b> <input checked="" type="checkbox"/>	
BORING NO. 91 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 10		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation: 10		Inches	
Acer rubrum		FAC		4		Depth of Surface Water:		Inches	
Nyssa sylvatica		FAC		3		Wetland Hydrology Present:		<b>YES</b> <input checked="" type="checkbox"/> <b>NO</b> <input type="checkbox"/>	
						Indicators:		<b>Primary</b>	
						<input type="checkbox"/> Inundated		<b>Secondary</b>	
<b>2. SAPLINGS/SHRUBS</b>						<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input type="checkbox"/> Oxidized Root Channels	
Acer rubrum		FAC		2		<input type="checkbox"/> Water Marks		<input type="checkbox"/> Water Stained	
Nyssa sylvatica		FAC		4		<input type="checkbox"/> Drift Lines		<input type="checkbox"/> Local Soil Survey	
Clethra alnifolia		FAC		3		<input checked="" type="checkbox"/> Sediment Deposits		<input type="checkbox"/> FAC Neutral Test	
						<input checked="" type="checkbox"/> Drainage Pattern		<input type="checkbox"/> Other	
<b>3. VINES</b>				<b>SUMMARY</b>					
Smilax rotundifolia		FAC		4		VEGETATION: <input checked="" type="checkbox"/>		<b>Present</b>	
						<input type="checkbox"/>		<b>Not Present</b>	
<b>4. HERBACEOUS</b>						SOILS: <input checked="" type="checkbox"/>		<b>Present</b>	
						<input type="checkbox"/>		<b>Not Present</b>	
						HYDROLOGY: <input checked="" type="checkbox"/>		<b>Present</b>	
						<input type="checkbox"/>		<b>Not Present</b>	
Percent of Dominant Species that are OBL, FACW or FAC:				100%		<b>DETERMINATION:</b>			
						PHOTOGRAPH: No.91 View looking east along Complex NE-E (MP57)			
<b>Community Type:</b>									
<input checked="" type="checkbox"/>		PFO1							
<input type="checkbox"/>		PEM1							
<input checked="" type="checkbox"/>		PSS1							
<input type="checkbox"/>		SOW							
<input type="checkbox"/>		CW							
<input type="checkbox"/>		UPL							
<b>Classification (4):</b>									
<input checked="" type="checkbox"/>		Hydrophytic							
<input type="checkbox"/>		Non-Hydrophytic							
<b>SOILS</b>									
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>					
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-15	10YR4/1	N/A	N/A	DUFF					
15-20	10YR5/4	10YR5/6	MANY/DIST	SANDY/LOAM					
20-29	10YR5/6	N/A	N/A	SANDY/LOAM					
Soil Unit as Mapped (7): <b>Ma</b> (Manahawkin muck)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					



Station: <b>MP No. 57</b>		<b>COMPLEX: NE-E</b>		Date: <b>12/21/99</b>		Project No.: <b>NJHA-00120</b>		Investigator: <b>KK</b> <input checked="" type="checkbox"/> <b>STK</b> <input checked="" type="checkbox"/>	
BORING NO. 92 UPL									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation:		Inches	
none						Depth of Surface Water:		Inches	
						Wetland Hydrology Present:		<b>YES</b> <input type="checkbox"/> <b>NO</b> <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern	
<b>2. SAPLINGS/SHRUBS</b>								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
<b>3. VINES</b>									
none									
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>					
LAWN		N/L		5		VEGETATION:		<input type="checkbox"/> <b>Present</b> <input checked="" type="checkbox"/> <b>Not Present</b>	
						SOILS:		<input type="checkbox"/> <b>Present</b> <input checked="" type="checkbox"/> <b>Not Present</b>	
						HYDROLOGY:		<input type="checkbox"/> <b>Present</b> <input checked="" type="checkbox"/> <b>Not Present</b>	
Percent of Dominant Species that are OBL, FACW or FAC:				0%					
<b>Community Type:</b>				<b>DETERMINATION:</b>					
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.92 View looking north along Complex NE-E (MP57)					
									
<b>Classification (4):</b>									
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-4		10YR4/3		N/A		N/A		DUFF	
4-22		10YR5/6		N/A		N/A		SANDY/LOAM	
Soil Unit as Mapped (7): <b>LhA</b> (Lakehurst sand, 0-3% slopes)									
Soil Classification as Mapped (8):				<input type="checkbox"/> <b>Hydric</b> <input checked="" type="checkbox"/> <b>Non-Hydric</b>					
Soil Classification as Sampled (9):				<input type="checkbox"/> <b>Hydric</b> <input checked="" type="checkbox"/> <b>Non-Hydric</b>					




Station: MP No. 57		COMPLEX: MN-D		Date: 12/21/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 93 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator	Cover	Depth to free water in pit: 10	Inches				
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 10	Inches				
Acer rubrum		FAC	5	Depth of Surface Water:	Inches				
Pinus rigida		FACU	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>				
				Indicators:	Primary	Secondary			
					Inundated	Oxidized Root Channels			
					<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/> Water Stained			
					<input type="checkbox"/> Water Marks	<input type="checkbox"/> Local Soil Survey			
					<input type="checkbox"/> Drift Lines	<input type="checkbox"/> FAC Neutral Test			
					<input checked="" type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Other			
					<input type="checkbox"/> Drainage Pattern				
<b>2. SAPLINGS/SHRUBS</b>									
Acer rubrum		FAC	5						
Pinus rigida		FACU	3						
Clethra alnifolia		FAC	4						
<b>3. VINES</b>									
<b>4. HERBACEOUS</b>									
Percent of Dominant Species that are OBL, FACW or FAC:				60%					
Community Type:				SUMMARY					
<input checked="" type="checkbox"/>	PFO1			VEGETATION:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
<input type="checkbox"/>	PEM1			SOILS:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
<input checked="" type="checkbox"/>	PSS1			HYDROLOGY:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
<input type="checkbox"/>	SOW								
<input type="checkbox"/>	CW								
<input type="checkbox"/>	UPL								
Classification (4):				DETERMINATION:					
<input checked="" type="checkbox"/>	Hydrophytic			PHOTOGRAPH: No.93 View looking northwest along Complex MN-D (MP57)					
<input type="checkbox"/>	Non-Hydrophytic								
<b>SOILS</b>									
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)					
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-15	10YR4/1	N/A	N/A	DUFF					
15-17	10YR5/4	10YR5/6	MANY/DIST	SANDY/LOAM					
17-23	10YR5/6	N/A	N/A	SANDY/LOAM					
Soil Unit as Mapped (7): Ma (Manahawkin muck)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric						
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric						





Station: MP No. 57.4		COMPLEX: NE-F		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 94 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover		Depth to free water in pit: 4	Inches			
1. CANOPY	Status (2)	Class (3)		Depth to Soil Saturation: 4	Inches			
Acer rubrum	FAC	5		Depth of Surface Water:	Inches			
Pinus rigida	FACU	2		Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
				Indicators:	Primary		Secondary	
					<input type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels	
2. SAPLINGS/SHRUBS					<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
Acer rubrum	FAC	5			<input type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Pinus rigida	FACU	2			<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
Ilex glabra	FACW	3			<input checked="" type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
					<input checked="" type="checkbox"/> Drainage Pattern			
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia	FAC	5		VEGETATION:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
				SOILS:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
4. HERBACEOUS				HYDROLOGY:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				67%	<b>DETERMINATION:</b>			
				PHOTOGRAPH: No.94 View looking east along Complex NE-F (MP57.4)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-28	10YR4/1	N/A	N/A	HISTIC				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 57.4		COMPLEX: NE-F		Date: 12/21/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 95 UPL									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches	
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches	
none						Depth of Surface Water:		Inches	
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern	
								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
2. SAPLINGS/SHRUBS									
none									
3. VINES									
none									
4. HERBACEOUS				<b>SUMMARY</b>					
LAWN		N/L		5		VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
						SOILS:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
						HYDROLOGY:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				0%					
Community Type:				DETERMINATION:					
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.95 View looking north along Complex NE-F (MP57.4)					
Classification (4):									
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
DEPTH		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
(Inches)									
0-8		10YR4/4		N/A		N/A		DUFF	
8-17		10YR5/8		10YR4/4		MANY/DIST		SANDY/LOAM	
Soil Unit as Mapped (7): Ma (Manahawkin muck)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric		<input checked="" type="checkbox"/> Non-Hydric					

Station: MP No. 57.3		COMPLEX: MN-E		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 96 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 10		Inches		
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 10		Inches		
Acer rubrum		FAC	5	Depth of Surface Water:		Inches		
Pinus rigida		FACU	2	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern		
<b>2. SAPLINGS/SHRUBS</b>				<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other				
Acer rubrum		FAC	5					
Pinus rigida		FACU	1					
Clethra alnifolia		FAC	3					
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia		FAC	4	VEGETATION:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
				SOILS:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
<b>4. HERBACEOUS</b>				HYDROLOGY:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:				67%		<b>DETERMINATION:</b>		
						PHOTOGRAPH: No.96 View looking west along Complex MN-E (MP57.3)		
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-41	10YR4/2	N/A	N/A	HISTIC				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

Station: MP No. 69.5		COMPLEX: NE-L		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 97 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 8		Inches		
Acer rubrum		FAC	5	Depth of Surface Water:		Inches		
Pinus rigida		FACU	3	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
				Indicators:		Primary Secondary		
				<input type="checkbox"/>		Inundated <input type="checkbox"/>		
				<input checked="" type="checkbox"/>		Saturated w/in upper 12" <input checked="" type="checkbox"/>		
				<input type="checkbox"/>		Water Marks <input type="checkbox"/>		
				<input type="checkbox"/>		Drift Lines <input type="checkbox"/>		
				<input type="checkbox"/>		Sediment Deposits <input type="checkbox"/>		
				<input checked="" type="checkbox"/>		Drainage Pattern <input type="checkbox"/>		
<b>2. SAPLINGS/SHRUBS</b>								
Acer rubrum		FAC	5					
Pinus rigida		FACU	3					
Ilex glabra		FACW	4					
<b>3. VINES</b>								
<b>4. HERBACEOUS</b>								
Schizachyrium scoparium		FACU	3					
Percent of Dominant Species that are OBL, FACW or FAC:				50%				
<b>Community Type:</b>								
<input checked="" type="checkbox"/> PFO1								
<input type="checkbox"/> PEM1								
<input checked="" type="checkbox"/> PSS1								
<input type="checkbox"/> SOW								
<input type="checkbox"/> CW								
<input type="checkbox"/> UPL								
<b>Classification (4):</b>								
<input checked="" type="checkbox"/> Hydrophytic								
<input type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-14	10YR4/2	N/A	N/A	DUFF				
14-18	10YR5/1	10YR4/2	MANY/DIST	SANDY/LOAM				
18-26	10YR5/1	N/A	N/A	SANDY/LOAM				
Soil Unit as Mapped (7): Mu (Mullica sandy loam)								
Soil Classification as Mapped (8):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric				



Station: MP No. 59.5		COMPLEX: NE-L		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 98 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
2. SAPLINGS/SHRUBS				Indicators:		Primary		Secondary
none				<input type="checkbox"/>		Inundated	<input type="checkbox"/>	Oxidized Root Channels
				<input type="checkbox"/>		Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained
				<input type="checkbox"/>		Water Marks	<input type="checkbox"/>	Local Soil Survey
3. VINES				<input type="checkbox"/>		Drift Lines	<input type="checkbox"/>	FAC Neutral Test
none				<input type="checkbox"/>		Sediment Deposits	<input type="checkbox"/>	Other
				<input type="checkbox"/>		Drainage Pattern		
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
LAWN		N/L	5	SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC: 0%								
Community Type:				DETERMINATION:				
<input type="checkbox"/> PFO1				PHOTOGRAPH: No.98 View looking north along Complex NE-L (MP59.5)				
<input type="checkbox"/> PEM1								
<input type="checkbox"/> PSS1								
<input type="checkbox"/> SOW								
<input type="checkbox"/> CW								
<input checked="" type="checkbox"/> UPL								
Classification (4):								
<input type="checkbox"/> Hydrophytic								
<input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTILING COLORS	MOTTILING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/2	N/A	N/A	DUFF				
2-11	10YR6/6	7.5YR6/8	MANY/DIST	SANDY/LOAM				
11-22	7.5YR6/8	N/A	N/A	SANDY/LOAM				
Soil Unit as Mapped (7): Mu (Mullica sandy loam)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 60.3		COMPLEX: NE-M		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 99 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0		Inches		
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 0		Inches		
Acer rubrum		FAC	4	Depth of Surface Water: 2		Inches		
Chamaecyparis thyoides		OBL	2	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
				Indicators:		<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern		<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other
<b>2. SAPLINGS/SHRUBS</b>								
Acer rubrum		FAC	5					
Chamaecyparis thyoides		OBL	3					
Ilex glabra		FACW	3					
<b>3. VINES</b>								
<b>4. HERBACEOUS</b>								
Percent of Dominant Species that are OBL, FACW or FAC:				100%				
<b>Community Type:</b>				<b>SUMMARY</b>				
<input checked="" type="checkbox"/>	PFO1			VEGETATION:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
<input type="checkbox"/>	PEM1			SOILS:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
<input checked="" type="checkbox"/>	PSS1			HYDROLOGY:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>				<b>DETERMINATION:</b>				
<input checked="" type="checkbox"/>	Hydrophytic			PHOTOGRAPH: No.99 View looking east along Complex NE-M (MP60.3)				
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-29	10YR4/1	N/A	N/A	HISTIC				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 60.3		COMPLEX: NE-M		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 100 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
				Indicators:		Primary		Secondary
2. SAPLINGS/SHRUBS				<input type="checkbox"/>	Inundated	<input type="checkbox"/>	Oxidized Root Channels	
none				<input type="checkbox"/>	Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	
				<input type="checkbox"/>	Water Marks	<input type="checkbox"/>	Local Soil Survey	
3. VINES				<input type="checkbox"/>	Drift Lines	<input type="checkbox"/>	FAC Neutral Test	
none				<input type="checkbox"/>	Sediment Deposits	<input type="checkbox"/>	Other	
				<input type="checkbox"/>	Drainage Pattern			
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:	<input type="checkbox"/>	Present	<input checked="" type="checkbox"/>	Not Present
				SOILS:	<input type="checkbox"/>	Present	<input checked="" type="checkbox"/>	Not Present
				HYDROLOGY:	<input type="checkbox"/>	Present	<input checked="" type="checkbox"/>	Not Present
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
Community Type:				DETERMINATION:				
<input type="checkbox"/>	PFO1			PHOTOGRAPH: No.100 View looking north along Complex NE-M (MP60.3)				
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
Classification (4):								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTILING COLORS	MOTTILING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-4	10YR4/2	N/A	N/A	DUFF				
4-16	10YR6/6	10YR4/4	MANY/DIST	SANDY/LOAM				
16-27	10YR6/6	7.5YR8/8	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



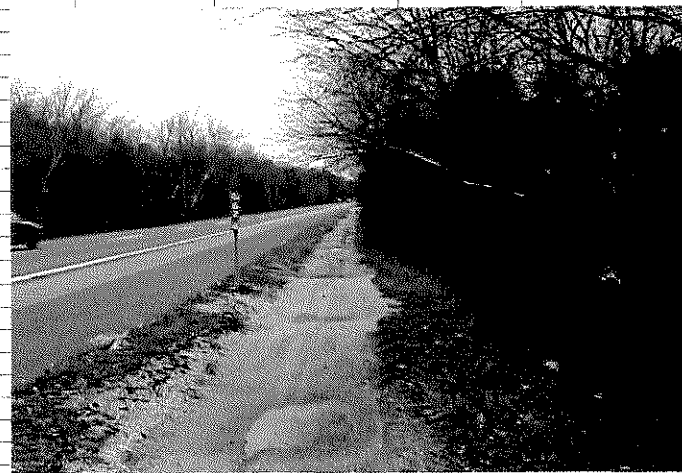
Station: MP No. 60.3		COMPLEX: MN-I		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 101 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 0		Inches		
Acer rubrum		FAC	5	Depth of Surface Water: 1		Inches		
Chamaecyparis thyoides		OBL	3	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
				Indicators:		<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern		
						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
2. SAPLINGS/SHRUBS								
Acer rubrum		FAC	5					
Chamaecyparis thyoides		OBL	3					
Ilex glabra		FACW	4					
3. VINES								
4. HERBACEOUS								
				<b>SUMMARY</b> VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present				
Percent of Dominant Species that are OBL, FACW or FAC:			100%					
				<b>DETERMINATION:</b> PHOTOGRAPH: No photo available.				
Community Type:								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
Classification (4):								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-26	10YR4/1	N/A	N/A	HISTIC				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: <b>MP No. 62.4</b>		<b>COMPLEX: NE-P</b>		Date: <b>12/21/99</b>	Project No.: <b>NJHA-00120</b>		Investigator: <b>KK</b> <input checked="" type="checkbox"/> <b>STK</b> <input checked="" type="checkbox"/>
BORING NO. 102 WET							
<b>VEGETATION</b>				<b>HYDROLOGY</b>			
Species (1)	Indicator	Cover		Depth to free water in pit: 0	Inches		
<b>1. CANOPY</b>	Status (2)	Class (3)		Depth to Soil Saturation: 0	Inches		
Acer rubrum	FAC	4		Depth of Surface Water: 1	Inches		
Chamaecyparis thyoides	OBL	3		Wetland Hydrology Present:	<b>YES</b> <input checked="" type="checkbox"/> <b>NO</b> <input type="checkbox"/>		
				Indicators:	<b>Primary</b>		<b>Secondary</b>
					<input type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels
<b>2. SAPLINGS/SHRUBS</b>					<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Water Stained
Clethra alnifolia	FAC	3			<input checked="" type="checkbox"/> Water Marks	<input type="checkbox"/>	<input type="checkbox"/> Local Soil Survey
Ilex glabra	FACW	2			<input type="checkbox"/> Drift Lines	<input type="checkbox"/>	<input type="checkbox"/> FAC Neutral Test
					<input checked="" type="checkbox"/> Sediment Deposits	<input type="checkbox"/>	<input type="checkbox"/> Other
					<input checked="" type="checkbox"/> Drainage Pattern		
<b>3. VINES</b>				<b>SUMMARY</b>			
				VEGETATION:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>				SOILS:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present	
				HYDROLOGY:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:		100%					
<b>Community Type:</b>				<b>DETERMINATION:</b>			
<input checked="" type="checkbox"/>	PFO1	PHOTOGRAPH: No.102 View looking east along Complex NE-P (MP62.4)					
<input type="checkbox"/>	PEM1						
<input type="checkbox"/>	PSS1						
<input checked="" type="checkbox"/>	SOW						
<input type="checkbox"/>	CW						
<input type="checkbox"/>	UPL						
<b>Classification (4):</b>							
<input checked="" type="checkbox"/>	Hydrophytic						
<input type="checkbox"/>	Non-Hydrophytic						
<b>SOILS</b>							
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>			
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST	HISTIC			
0-28	10YR4/1	N/A	N/A				
Soil Unit as Mapped (7): <b>Ma</b> (Manahawkin muck)							
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric				
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric				



Station: MP No. 62.4		COMPLEX: NE-P		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 103 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
				Indicators:		<b>Primary</b>		<b>Secondary</b>
2. SAPLINGS/SHRUBS				<input type="checkbox"/>		Inundated		<input type="checkbox"/> Oxidized Root Channels
none				<input type="checkbox"/>		Saturated w/in upper 12"		<input type="checkbox"/> Water Stained
				<input type="checkbox"/>		Water Marks		<input type="checkbox"/> Local Soil Survey
3. VINES				<input type="checkbox"/>		Drift Lines		<input type="checkbox"/> FAC Neutral Test
none				<input type="checkbox"/>		Sediment Deposits		<input type="checkbox"/> Other
				<input type="checkbox"/>		Drainage Pattern		
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION: <input type="checkbox"/>		Present	<input checked="" type="checkbox"/>	Not Present
LAWN		N/L	5	SOILS: <input type="checkbox"/>		Present	<input checked="" type="checkbox"/>	Not Present
				HYDROLOGY: <input type="checkbox"/>		Present	<input checked="" type="checkbox"/>	Not Present
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
Community Type:				DETERMINATION:				
<input type="checkbox"/> PFO1				PHOTOGRAPH: No.103 View looking north along Complex NE-P (MP62.4)				
<input type="checkbox"/> PEM1								
<input type="checkbox"/> PSS1								
<input type="checkbox"/> SOW								
<input type="checkbox"/> CW								
<input checked="" type="checkbox"/> UPL								
Classification (4):								
<input type="checkbox"/> Hydrophytic								
<input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-2	10YR4/3	N/A	N/A	DUFF				
2-10	10YR5/6	10YR6/8	MANY/DIST	SANDY/LOAM				
10-24	10YR6/6	N/A	N/A	SANDY/LOAM				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 65.7	COMPLEX: NE-X	Date: 12/21/99	Project No.: NJHA-00120	Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>
BORING NO. 104 WET				
<b>VEGETATION</b>		Indicator	Cover	<b>HYDROLOGY</b>
Species (1)	Status (2)	Class (3)	Depth to free water in pit: 0	Inches
<b>1. CANOPY</b>	FAC	3	Depth to Soil Saturation: 0	Inches
Acer rubrum	OBL	4	Depth of Surface Water: 4	Inches
Chamaecyparis thyoides			Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
			Indicators:	<b>Primary</b>
			<input checked="" type="checkbox"/> Inundated	<input checked="" type="checkbox"/> Oxidized Root Channels
			<input type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/> Water Stained
			<input type="checkbox"/> Water Marks	<input type="checkbox"/> Local Soil Survey
			<input type="checkbox"/> Drift Lines	<input type="checkbox"/> FAC Neutral Test
			<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Other
			<input checked="" type="checkbox"/> Drainage Pattern	
<b>2. SAPLINGS/SHRUBS</b>	FAC	4		
Clethra alnifolia	FACW	2		
Vaccinium corymbosum	FAC	1		
Quercus macrocarpa				
<b>3. VINES</b>	FAC	4		
Smilax rotundifolia				
<b>4. HERBACEOUS</b>				
Percent of Dominant Species that are OBL, FACW or FAC:		100%	<b>DETERMINATION:</b>	
			PHOTOGRAPH: No.104 View looking east along Complex NE-X (MP65.7)	
<b>Community Type:</b>				
<input checked="" type="checkbox"/>	PFO1			
<input type="checkbox"/>	PEM1			
<input type="checkbox"/>	PSS1			
<input checked="" type="checkbox"/>	SOW			
<input type="checkbox"/>	CW			
<input type="checkbox"/>	UPL			
<b>Classification (4):</b>				
<input checked="" type="checkbox"/>	Hydrophytic			
<input type="checkbox"/>	Non-Hydrophytic			
<b>SOILS</b>				
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST	
0-30	10YR4/1	N/A	N/A	HISTIC
Soil Unit as Mapped (7): Ma (Manahawkin muck)				
Soil Classification as Mapped (8):	<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric		
Soil Classification as Sampled (9):	<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric		




Station: MP No. 65.7		COMPLEX: NE-X		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 105 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches		
none				Depth of Surface Water:		Inches		
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
2. SAPLINGS/SHRUBS				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
none						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES								
none								
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>				
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				SOILS:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
				HYDROLOGY:		<input type="checkbox"/>	Present	<input checked="" type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:		0%						
<b>Community Type:</b>				<b>DETERMINATION:</b>				
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No. 105 View looking north along Complex NE-X (MP65.7)				
<b>Classification (4):</b>								
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>		
DEPTH (Inches)		COLOR (5)		(Munsell Moist)	ABUNDANCE/CONTRAST			
0-6		10YR4/2		N/A	N/A	DUFF		
6-23		7.5YR5/8		10YR5/4	MANY/DIST	SANDY/LOAM		
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



Station: MP No. 69.4		COMPLEX: NE-Z		Date: 12/21/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 106 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit: 0		Inches	
<b>1. CANOPY</b>		Status (2)		Class (3)		Depth to Soil Saturation: 0		Inches	
Acer rubrum		FAC		5		Depth of Surface Water: 0		Inches	
Pinus rigida		FACU		3		Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
				Indicators:		<b>Primary</b>		<b>Secondary</b>	
				<input type="checkbox"/>		Inundated		<input checked="" type="checkbox"/> Oxidized Root Channels	
<b>2. SAPLINGS/SHRUBS</b>				<input checked="" type="checkbox"/>		Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
Acer rubrum		FAC		5		<input type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
Pinus rigida		FACU		1		<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
Clethra alnifolia		FAC		3		<input checked="" type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
Vaccinium corymbosum		FACW		4		<input checked="" type="checkbox"/> Drainage Pattern			
				<b>SUMMARY</b>					
<b>3. VINES</b>				VEGETATION:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
				SOILS:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>				HYDROLOGY:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				67%		<b>DETERMINATION:</b>			
				PHOTOGRAPH: No. 106 View looking east along Complex NE-Z (MP69.4)					
<b>Community Type:</b>									
<input checked="" type="checkbox"/>		PFO1							
<input type="checkbox"/>		PEM1							
<input checked="" type="checkbox"/>		PSS1							
<input type="checkbox"/>		SOW							
<input type="checkbox"/>		CW							
<input type="checkbox"/>		UPL							
<b>Classification (4):</b>									
<input checked="" type="checkbox"/>		Hydrophytic							
<input type="checkbox"/>		Non-Hydrophytic							
<b>SOILS</b>									
<b>DEPTH</b>		<b>MATRIX</b>		<b>MOTTLING COLORS</b>		<b>MOTTLING</b>		<b>TEXTURE (6)</b>	
(Inches)		COLOR (5)		(Munsell Moist)		ABUNDANCE/CONTRAST			
0-31		10YR3/1		N/A		N/A		HISTIC	
Soil Unit as Mapped (7): At (Atsion sand)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric					



Station: MP No. 69.4		COMPLEX: NE-Z		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>		
BORING NO. 107 UPL									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator	Cover	Depth to free water in pit:		Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:		Inches			
none				Depth of Surface Water:		Inches			
				Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern			
2. SAPLINGS/SHRUBS						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other			
3. VINES									
none									
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>					
LAWN		N/L	5	VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present			
				SOILS:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present			
				HYDROLOGY:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present			
Percent of Dominant Species that are OBL, FACW or FAC:			0%						
<b>Community Type:</b>				<b>DETERMINATION:</b>					
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.107 View looking north along Complex NE-Z (MP69.4)					
<b>Classification (4):</b>									
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING						TEXTURE (6)
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-6	10YR4/2	N/A	N/A						DUFF
6-16	10YR5/6	7.5YR5/8	MANY/DIST						SANDY/LOAM
16-23.5	7.5YR5/8	N/A	N/A						SANDY/LOAM
Soil Unit as Mapped (7): At (Atsion sand)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric						
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric						

Station: MP No. 71.1		COMPLEX: NE-BB		Date: 12/21/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 108 WET									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)	Indicator	Cover	Depth to free water in pit: 0 Inches						
1. CANOPY	Status (2)	Class (3)	Depth to Soil Saturation: 0 Inches						
Acer rubrum	FAC	5	Depth of Surface Water: 2 Inches						
Pinus rigida	FACU	3	Wetland Hydrology Present: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>						
Chamaecyparis thyoides	OBL	2	Indicators:						
			Inundated <input type="checkbox"/>				Primary		
			Saturated w/in upper 12" <input checked="" type="checkbox"/>				Secondary		
			Water Marks <input type="checkbox"/>				Oxidized Root Channels <input checked="" type="checkbox"/>		
			Drift Lines <input type="checkbox"/>				Water Stained <input checked="" type="checkbox"/>		
			Sediment Deposits <input checked="" type="checkbox"/>				Local Soil Survey <input type="checkbox"/>		
			Drainage Pattern <input checked="" type="checkbox"/>				FAC Neutral Test <input type="checkbox"/>		
							Other <input type="checkbox"/>		
<b>2. SAPLINGS/SHRUBS</b>									
Clethra alnifolia	FAC	2							
Ilex glabra	FACW	3							
<b>3. VINES</b>									
<b>4. HERBACEOUS</b>									
Percent of Dominant Species that are OBL, FACW or FAC: 80%									
Community Type:				SUMMARY					
<input checked="" type="checkbox"/> PFO1				VEGETATION: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present					
<input type="checkbox"/> PEM1				SOILS: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present					
<input type="checkbox"/> PSS1				HYDROLOGY: <input checked="" type="checkbox"/> Present <input type="checkbox"/> Not Present					
<input checked="" type="checkbox"/> SOW									
<input type="checkbox"/> CW									
<input type="checkbox"/> UPL									
Classification (4):				DETERMINATION:					
<input checked="" type="checkbox"/> Hydrophytic				PHOTOGRAPH: No.108 View looking east along Complex NE-8B (MP71.1)					
<input type="checkbox"/> Non-Hydrophytic									
SOILS									
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)					
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-28	10YR3/2	N/A	N/A	HISTIC					
Soil Unit as Mapped (7): Ma (Manahawkin muck)									
Soil Classification as Mapped (8):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):				<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric					



Station: MP No. 71.1		COMPLEX: NE-BB		Date: 12/21/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 109 UPL									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches	
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches	
none						Depth of Surface Water:		Inches	
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern	
2. SAPLINGS/SHRUBS								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
3. VINES									
none									
				<b>SUMMARY</b>					
4. HERBACEOUS						VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
LAWN		N/L		5		SOILS:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
						HYDROLOGY:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				0%					
Community Type:				DETERMINATION:					
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.109 View looking north along Complex NE-BB (MP71.1)					
Classification (4):									
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)					
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-5	10YR4/3	N/A	N/A	DUFF					
5-11	10YR5/8	7.5YR6/8	MANY/DIST	SANDY/LOAM					
11-15	7.5YR6/8	10YR7/4	MANY/DIST	SANDY/LOAM					
15-24	7.5YR5/8	N/A	N/A	SANDY/LOAM					
Soil Unit as Mapped (7): Ma (Manahawkin muck)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric							
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric							






Station: MP No. 71.9		COMPLEX: NE-DD		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 110 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 0		Inches		
Pinus rigida		FACU	5	Depth of Surface Water: 0		Inches		
Chamaecyparis thyoides		OBL	3	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
				Indicators:		<b>Primary</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
						<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
<b>2. SAPLINGS/SHRUBS</b>								
Pinus rigida		FACU	4					
Chamaecyparis thyoides		OBL	4					
Ilex glabra		FACW	5					
<b>3. VINES</b>								
				<b>SUMMARY</b>				
<b>4. HERBACEOUS</b>				VEGETATION:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present
Schizachyrium scoparium				SOILS:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present
				HYDROLOGY:		<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:				50%		<b>DETERMINATION:</b>		
				PHOTOGRAPH: No.110 View looking east along Complex NE-DD (MP71.9)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/> PFO1								
<input type="checkbox"/> PEM1								
<input checked="" type="checkbox"/> PSS1								
<input checked="" type="checkbox"/> SOW								
<input type="checkbox"/> CW								
<input type="checkbox"/> UPL								
<b>Classification (4):</b>								
<input checked="" type="checkbox"/> Hydrophytic								
<input type="checkbox"/> Non-Hydrophytic								
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-40	10YR3/1	N/A	N/A	HISTIC				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):				<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric		
Soil Classification as Sampled (9):				<input checked="" type="checkbox"/> Hydric		<input type="checkbox"/> Non-Hydric		



Station: MP No. 71.9		COMPLEX: NE-DD		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 111 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit:	Inches			
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation:	Inches			
none				Depth of Surface Water:	Inches			
				Wetland Hydrology Present:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
				Indicators:	Primary		Secondary	
2. SAPLINGS/SHRUBS					Inundated	<input type="checkbox"/>	Oxidized Root Channels	<input type="checkbox"/>
none					Saturated w/in upper 12"	<input type="checkbox"/>	Water Stained	<input type="checkbox"/>
					Water Marks	<input type="checkbox"/>	Local Soil Survey	<input type="checkbox"/>
3. VINES					Drift Lines	<input type="checkbox"/>	FAC Neutral Test	<input type="checkbox"/>
none					Sediment Deposits	<input type="checkbox"/>	Other	<input type="checkbox"/>
					Drainage Pattern	<input type="checkbox"/>		
				<b>SUMMARY</b>				
4. HERBACEOUS				VEGETATION:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
LAWN		N/L	5	SOILS:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
				HYDROLOGY:	<input type="checkbox"/> Present	<input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:			0%					
Community Type:				DETERMINATION:				
<input type="checkbox"/>	PFO1				PHOTOGRAPH: No. 111 View looking north along Complex NE-DD (MP71.9)			
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input checked="" type="checkbox"/>	UPL							
Classification (4):								
<input type="checkbox"/>	Hydrophytic							
<input checked="" type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-4	10YR4/4	N/A	N/A	DUFF				
4-17	10YR6/8	10YR4/4	MANY/DIST	SANDY/LOAM				
17-26	10YR6/8	7.5YR6/8	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric	<input checked="" type="checkbox"/> Non-Hydric					



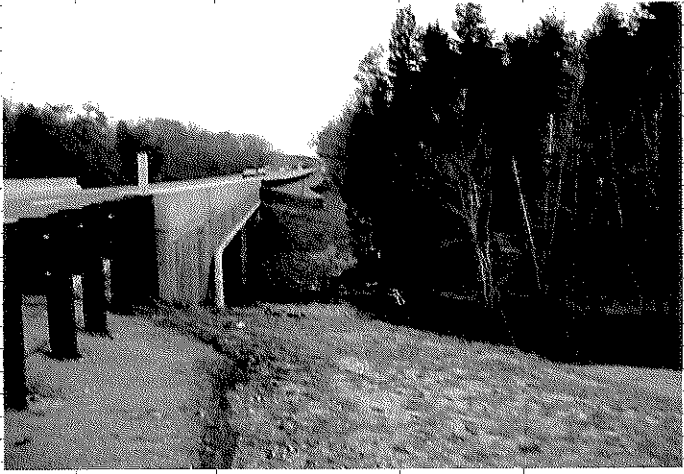
Station: MP No. 72.9		COMPLEX: NE-EE		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 112 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover		Depth to free water in pit: 1	Inches			
<b>1. CANOPY</b>	Status (2)	Class (3)		Depth to Soil Saturation: 1	Inches			
Pinus rigida	FACU	4		Depth of Surface Water:	Inches			
Chamaecyparis thyoides	OBL	3		Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
				Indicators:	<b>Primary</b>		<b>Secondary</b>	
					<input checked="" type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels	
<b>2. SAPLINGS/SHRUBS</b>					<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/>	<input type="checkbox"/> Water Stained	
Pinus rigida	FACU	2			<input type="checkbox"/> Water Marks	<input type="checkbox"/>	<input type="checkbox"/> Local Soil Survey	
Chamaecyparis thyoides	OBL	4			<input type="checkbox"/> Drift Lines	<input type="checkbox"/>	<input type="checkbox"/> FAC Neutral Test	
					<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/>	<input type="checkbox"/> Other	
					<input checked="" type="checkbox"/> Drainage Pattern			
<b>3. VINES</b>				<b>SUMMARY</b>				
Smilax rotundifolia	FAC	2		VEGETATION:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/>	<input type="checkbox"/> Not Present	
				SOILS:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/>	<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>				HYDROLOGY:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/>	<input type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:		60%		<b>DETERMINATION:</b>				
Community Type:		PHOTOGRAPH: No.112 View looking east along Complex NE-EEE (MP72.9)						
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
Classification (4):								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-36	10YR4/1	N/A	N/A	HISTIC				
								
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					

Station: MP No. 72.9		COMPLEX: NE-EE		Date: 12/21/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 113 UPL									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches	
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches	
none						Depth of Surface Water:		Inches	
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern	
2. SAPLINGS/SHRUBS								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
3. VINES									
none									
				<b>SUMMARY</b>					
4. HERBACEOUS						VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
LAWN		N/L		5		SOILS:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
						HYDROLOGY:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				0%					
				<b>DETERMINATION:</b>					
Community Type:				PHOTOGRAPH: No. 113 View looking north along Complex NE-EE (MP72.9)					
<input type="checkbox"/> PFO1									
<input type="checkbox"/> PEM1									
<input type="checkbox"/> PSS1									
<input type="checkbox"/> SOW									
<input type="checkbox"/> CW									
<input checked="" type="checkbox"/> UPL									
Classification (4):									
<input type="checkbox"/> Hydrophytic									
<input checked="" type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)					
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-3	10YR4/4	N/A	N/A	DUFF					
3-12	10YR6/8	10YR4/4	MANY/DIST	SANDY/LOAM					
12-23	10YR6/8	7.5YR5/8	MANY/DIST	SANDY/LOAM					
23-30	7.5YR5/8	N/A	N/A	SANDY/LOAM					
Soil Unit as Mapped (7): Ma (Manahawkin muck)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric							
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric							



Station: MP No. 74.8		COMPLEX: NE-HH		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 114 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)	Indicator	Cover		Depth to free water in pit:	Inches			
<b>1. CANOPY</b>	Status (2)	Class (3)		Depth to Soil Saturation: 0	Inches			
Pinus rigida	FACU	4		Depth of Surface Water: 3	Inches			
Chamaecyparis thyoides	OBL	5		Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
Acer rubrum	FAC	2		Indicators:	<b>Primary</b>		<b>Secondary</b>	
					<input type="checkbox"/> Inundated		<input type="checkbox"/> Oxidized Root Channels	
					<input checked="" type="checkbox"/> Saturated w/in upper 12"		<input checked="" type="checkbox"/> Water Stained	
					<input type="checkbox"/> Water Marks		<input type="checkbox"/> Local Soil Survey	
<b>2. SAPLINGS/SHRUBS</b>					<input type="checkbox"/> Drift Lines		<input type="checkbox"/> FAC Neutral Test	
Pinus rigida	FACU	4			<input type="checkbox"/> Sediment Deposits		<input type="checkbox"/> Other	
Chamaecyparis thyoides	OBL	5			<input checked="" type="checkbox"/> Drainage Pattern			
Acer rubrum	FAC	2						
Clethra alnifolia	FAC	4						
				<b>SUMMARY</b>				
<b>3. VINES</b>				VEGETATION:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
Smilax rotundifolia	FAC	4		SOILS:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
				HYDROLOGY:	<input checked="" type="checkbox"/> Present		<input type="checkbox"/> Not Present	
<b>4. HERBACEOUS</b>								
				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No. 114 View looking east along Complex NE-HH (MP74.8)				
Percent of Dominant Species that are OBL, FACW or FAC:		75%						
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-31	10YR2/1	N/A	N/A	HISTIC				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 74.8		COMPLEX: NE-HH		Date: 12/21/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>		
BORING NO. 115 UPL										
<b>VEGETATION</b>				<b>HYDROLOGY</b>						
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches		
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches		
none						Depth of Surface Water:		Inches		
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern		
2. SAPLINGS/SHRUBS								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other		
3. VINES										
none										
4. HERBACEOUS				<b>SUMMARY</b>						
LAWN		N/L		5		VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
						SOILS:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
						HYDROLOGY:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				0%						
Community Type:				DETERMINATION:						
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No. 115 View looking north along Complex NE-HH (MP74.8)						
Classification (4):										
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic										
<b>SOILS</b>										
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING							TEXTURE (6)
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST							
0-4	10YR4/4	N/A	N/A							DUFF
4-10	10YR6/8	10YR4/4	MANY/DIST							SANDY/LOAM
10-18	10YR6/8	7.5YR6/8	MANY/DIST							SANDY/LOAM
18-28	7.5YR6/8	N/A	N/A							SANDY/LOAM
Soil Unit as Mapped (7): Ma (Manahawkin muck)										
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric								
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric								

Station: MP No. 76.7		COMPLEX: NE-JJ		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 116 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0	Inches			
<b>1. CANOPY</b>		Status (2)	Class (3)	Depth to Soil Saturation: 0	Inches			
Acer rubrum		FAC	5	Depth of Surface Water: 0	Inches			
Nyssa sylvatica		FAC	3	Wetland Hydrology Present:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>			
				Indicators:	<b>Primary</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Pattern		<b>Secondary</b> <input checked="" type="checkbox"/> Oxidized Root Channels <input checked="" type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
<b>2. SAPLINGS/SHRUBS</b>								
Clethra alnifolia		FAC	1					
Vaccinium corymbosum		FACW	1					
<b>3. VINES</b>								
Smilax rotundifolia		FAC	2					
<b>4. HERBACEOUS</b>								
				<b>SUMMARY</b>				
				VEGETATION:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
				SOILS:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
				HYDROLOGY:	<input checked="" type="checkbox"/>	Present	<input type="checkbox"/>	Not Present
Percent of Dominant Species that are OBL, FACW or FAC:				100%				
				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.116 View looking east along Complex NE-JJ (MP76.7)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input type="checkbox"/>	PSS1							
<input type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-24	10YR4/1	N/A	N/A	HISTIC				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 76.7		COMPLEX: NE-JJ		Date: 12/21/99		Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 117 UPL									
<b>VEGETATION</b>				<b>HYDROLOGY</b>					
Species (1)		Indicator		Cover		Depth to free water in pit:		Inches	
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation:		Inches	
none						Depth of Surface Water:		Inches	
						Wetland Hydrology Present:		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
						Indicators:		<b>Primary</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Pattern	
2. SAPLINGS/SHRUBS								<b>Secondary</b> <input type="checkbox"/> Oxidized Root Channels <input type="checkbox"/> Water Stained <input type="checkbox"/> Local Soil Survey <input type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other	
3. VINES									
none									
<b>4. HERBACEOUS</b>				<b>SUMMARY</b>					
LAWN		N/L		5		VEGETATION:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
						SOILS:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
						HYDROLOGY:		<input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present	
Percent of Dominant Species that are OBL, FACW or FAC:				0%					
<b>Community Type:</b>				<b>DETERMINATION:</b>					
<input type="checkbox"/> PFO1 <input type="checkbox"/> PEM1 <input type="checkbox"/> PSS1 <input type="checkbox"/> SOW <input type="checkbox"/> CW <input checked="" type="checkbox"/> UPL				PHOTOGRAPH: No.117 View looking north along Complex NE-JJ (MP76.7)					
<b>Classification (4):</b>									
<input type="checkbox"/> Hydrophytic <input checked="" type="checkbox"/> Non-Hydrophytic									
<b>SOILS</b>									
<b>DEPTH</b>	<b>MATRIX</b>	<b>MOTTLING COLORS</b>	<b>MOTTLING</b>	<b>TEXTURE (6)</b>					
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST						
0-4	7.5YR4/1	N/A	N/A	DUFF					
4-6	7.5YR5/4	7.5YR4/1	MANY/DIST	SANDY/LOAM					
6-18	7.5YR5/6	N/A	N/A	GRAVELLY/SAND					
18-25	7.5YR5/6	7.5YR6/4	MANY/DIST	GRAVELLY/SAND					
Soil Unit as Mapped (7): Ma (Manahawkin muck)									
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric							
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric							





Station: MP No. 80.4		COMPLEX: NE-QQ		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 118 WET								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator	Cover	Depth to free water in pit: 0		Inches		
1. CANOPY		Status (2)	Class (3)	Depth to Soil Saturation: 0		Inches		
Acer rubrum		FAC	4	Depth of Surface Water: 0		Inches		
Chamaecyparis thyoides		OBL	4	Wetland Hydrology Present:		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
				Indicators:		<b>Primary</b>		<b>Secondary</b>
						<input type="checkbox"/> Inundated	<input type="checkbox"/> Oxidized Root Channels	
						<input checked="" type="checkbox"/> Saturated w/in upper 12"	<input checked="" type="checkbox"/> Water Stained	
						<input type="checkbox"/> Water Marks	<input type="checkbox"/> Local Soil Survey	
						<input type="checkbox"/> Drift Lines	<input type="checkbox"/> FAC Neutral Test	
						<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Other	
						<input checked="" type="checkbox"/> Drainage Pattern		
				<b>SUMMARY</b>				
				VEGETATION:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
				SOILS:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
				HYDROLOGY:		<input checked="" type="checkbox"/>	Present	<input type="checkbox"/> Not Present
Percent of Dominant Species that are OBL, FACW or FAC:				100%				
				<b>DETERMINATION:</b>				
				PHOTOGRAPH: No.118 View looking east along Complex NE-QQ (MP80.4)				
<b>Community Type:</b>								
<input checked="" type="checkbox"/>	PFO1							
<input type="checkbox"/>	PEM1							
<input checked="" type="checkbox"/>	PSS1							
<input checked="" type="checkbox"/>	SOW							
<input type="checkbox"/>	CW							
<input type="checkbox"/>	UPL							
<b>Classification (4):</b>								
<input checked="" type="checkbox"/>	Hydrophytic							
<input type="checkbox"/>	Non-Hydrophytic							
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(Inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-26	10YR2/1	N/A	N/A	HISTIC SILT				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					
Soil Classification as Sampled (9):		<input checked="" type="checkbox"/> Hydric	<input type="checkbox"/> Non-Hydric					



Station: MP No. 80.4		COMPLEX: NE-QQ		Date: 12/21/99	Project No.: NJHA-00120		Investigator: KK <input checked="" type="checkbox"/> STK <input checked="" type="checkbox"/>	
BORING NO. 119 UPL								
<b>VEGETATION</b>				<b>HYDROLOGY</b>				
Species (1)		Indicator		Cover		Depth to free water in pit: inches		
1. CANOPY		Status (2)		Class (3)		Depth to Soil Saturation: inches		
none						Depth of Surface Water: inches		
						Wetland Hydrology Present: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
						Indicators:		
2. SAPLINGS/SHRUBS						Primary		
none						Secondary		
						<input type="checkbox"/> Inundated <input type="checkbox"/> Oxidized Root Channels		
						<input type="checkbox"/> Saturated w/in upper 12" <input type="checkbox"/> Water Stained		
						<input type="checkbox"/> Water Marks <input type="checkbox"/> Local Soil Survey		
						<input type="checkbox"/> Drift Lines <input type="checkbox"/> FAC Neutral Test		
3. VINES						<input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Other		
none						<input type="checkbox"/> Drainage Pattern		
				<b>SUMMARY</b>				
4. HERBACEOUS								
LAWN		N/L		5		VEGETATION: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
						SOILS: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
						HYDROLOGY: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Not Present		
Percent of Dominant Species that are OBL, FACW or FAC:				0%				
				<b>DETERMINATION:</b>				
Community Type:				PHOTOGRAPH: No.119 View looking north along Complex NE-QQ (MP80.4)				
<input type="checkbox"/>		PFO1						
<input type="checkbox"/>		PEM1						
<input type="checkbox"/>		PSS1						
<input type="checkbox"/>		SOW						
<input type="checkbox"/>		CW						
<input checked="" type="checkbox"/>		UPL						
Classification (4):								
<input type="checkbox"/>		Hydrophytic						
<input checked="" type="checkbox"/>		Non-Hydrophytic						
<b>SOILS</b>								
DEPTH	MATRIX	MOTTLING COLORS	MOTTLING	TEXTURE (6)				
(inches)	COLOR (5)	(Munsell Moist)	ABUNDANCE/CONTRAST					
0-3	7.5YR4/1	N/A	N/A	DUFF				
3-12	7.5YR5/4	7.5YR4/1	MANY/DIST	SANDY/LOAM				
12-16	7.5YR5/6	N/A	N/A	SANDY/LOAM				
16-30	7.5YR5/6	7.5YR6/4	MANY/DIST	SANDY/LOAM				
Soil Unit as Mapped (7): Ma (Manahawkin muck)								
Soil Classification as Mapped (8):		<input checked="" type="checkbox"/> Hydric <input type="checkbox"/> Non-Hydric						
Soil Classification as Sampled (9):		<input type="checkbox"/> Hydric <input checked="" type="checkbox"/> Non-Hydric						

